

Figure 7a. Results of Amphipod Toxicity Confirmation for Stations in Suisun Bay.

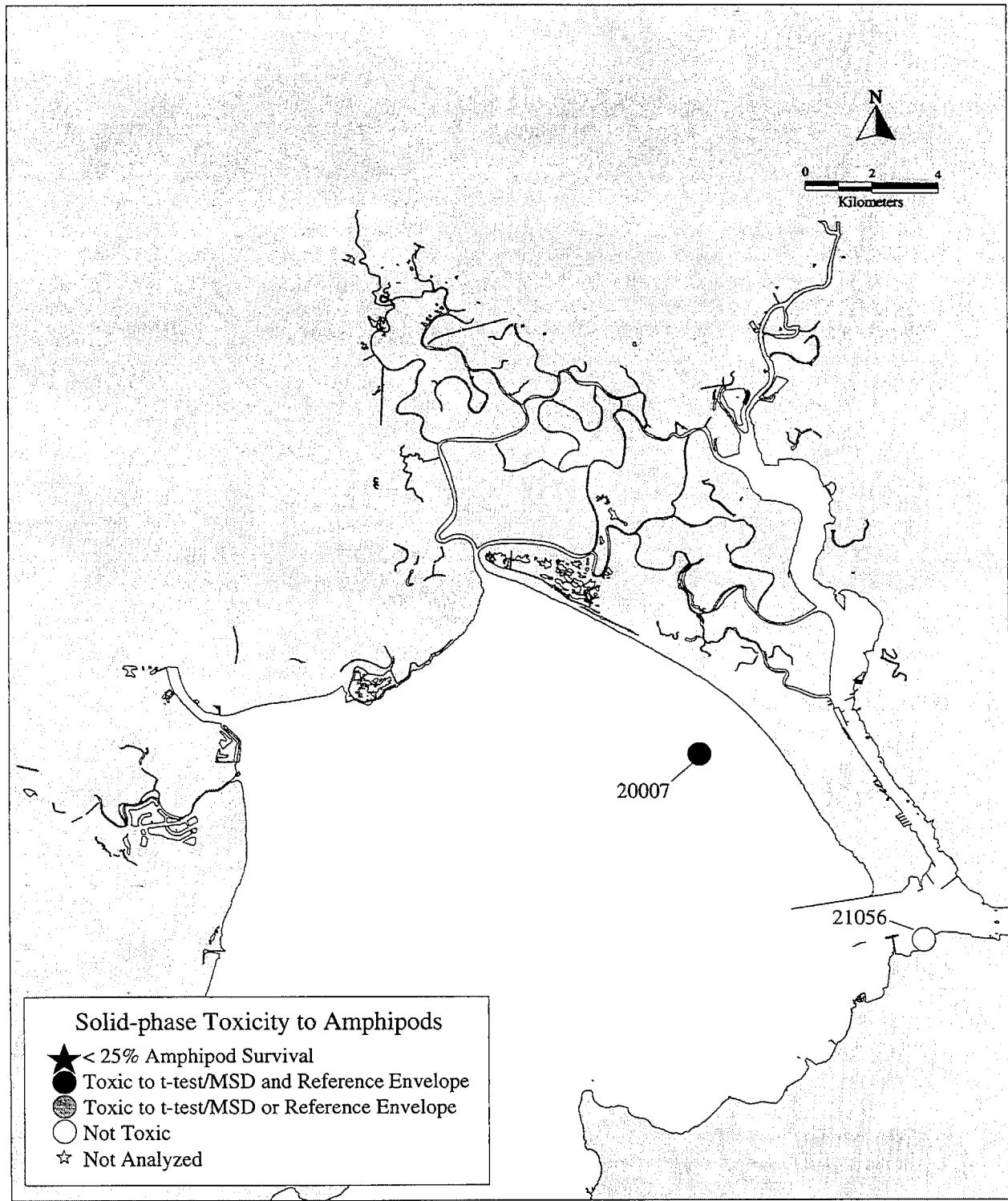


Figure 7b. Results of Amphipod Toxicity Confirmation for Stations in San Pablo Bay.

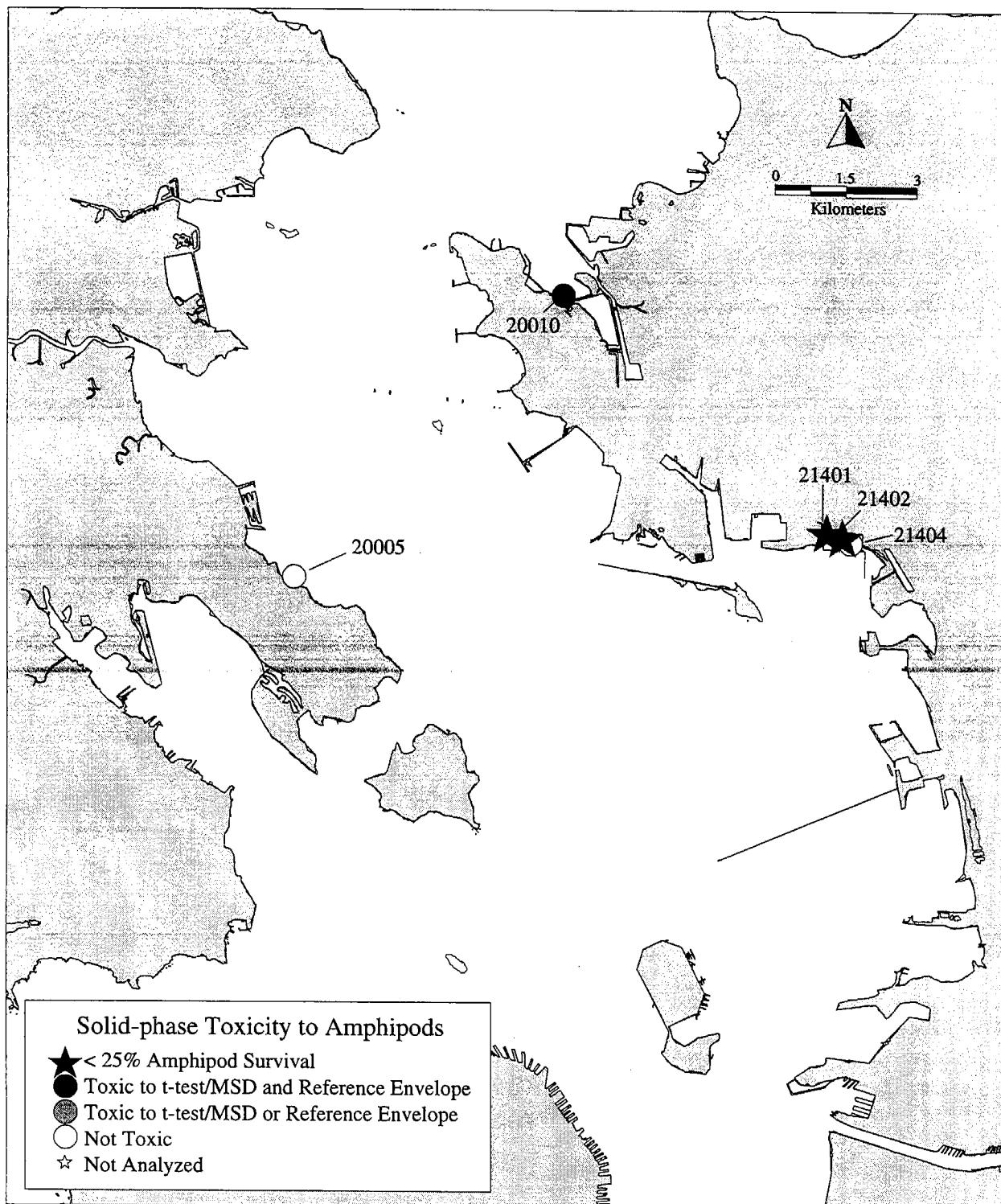


Figure 7c. Results of Amphipod Toxicity Confirmation for Stations in Central San Francisco Bay.

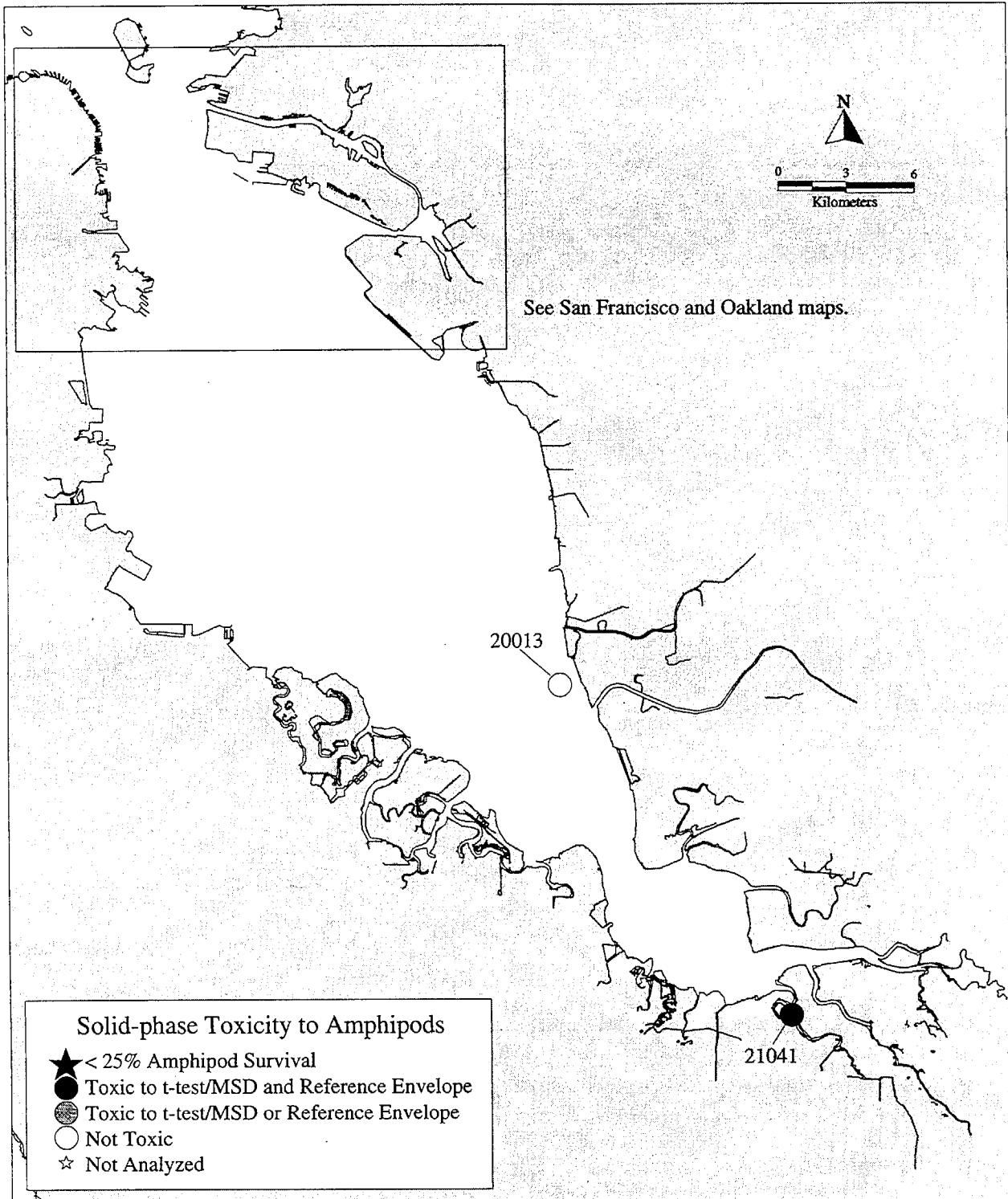


Figure 7d. Results of Amphipod Toxicity Confirmation for Stations in South San Francisco Bay.

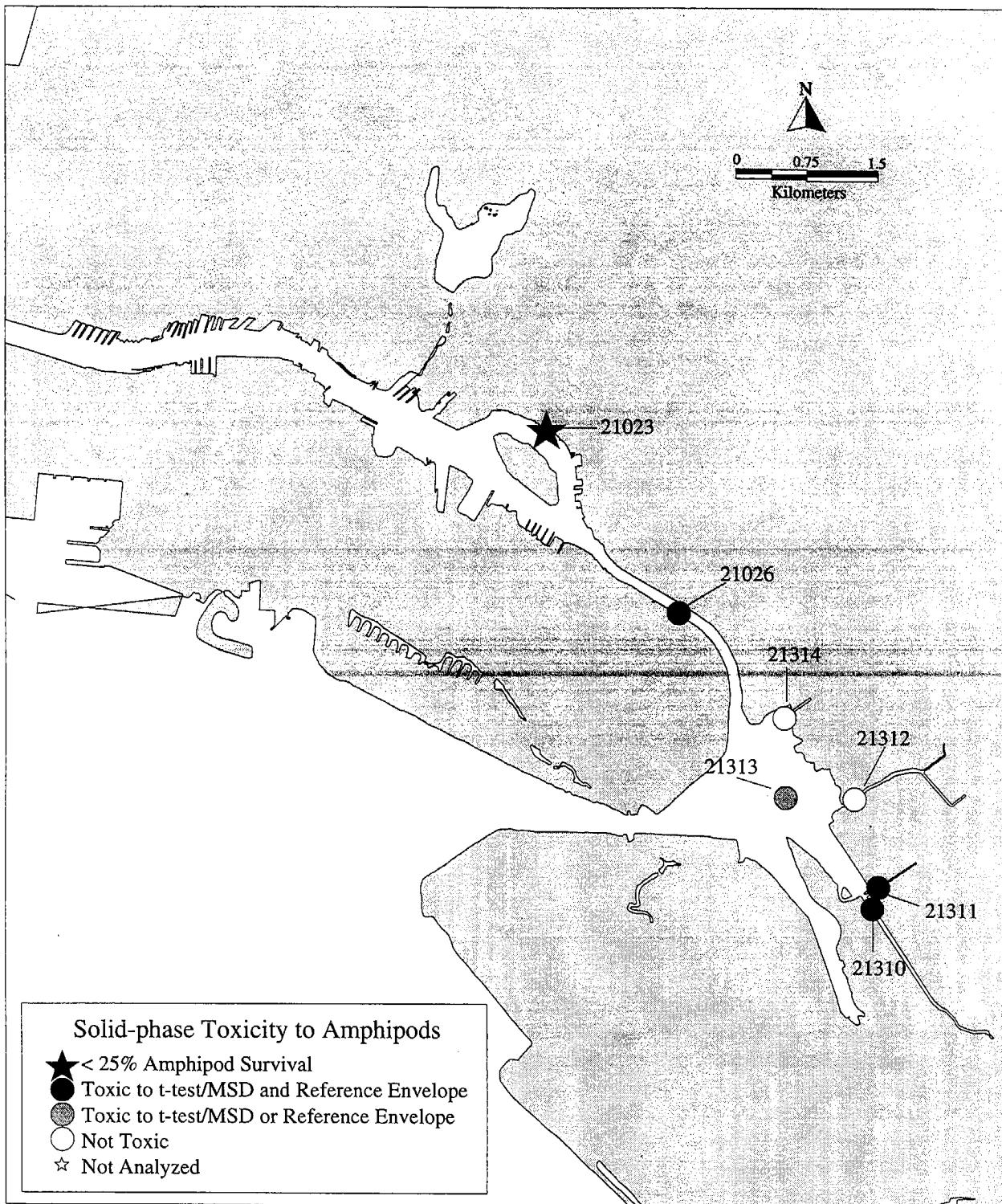


Figure 7e. Results of Amphipod Toxicity Confirmation for Stations in Oakland.

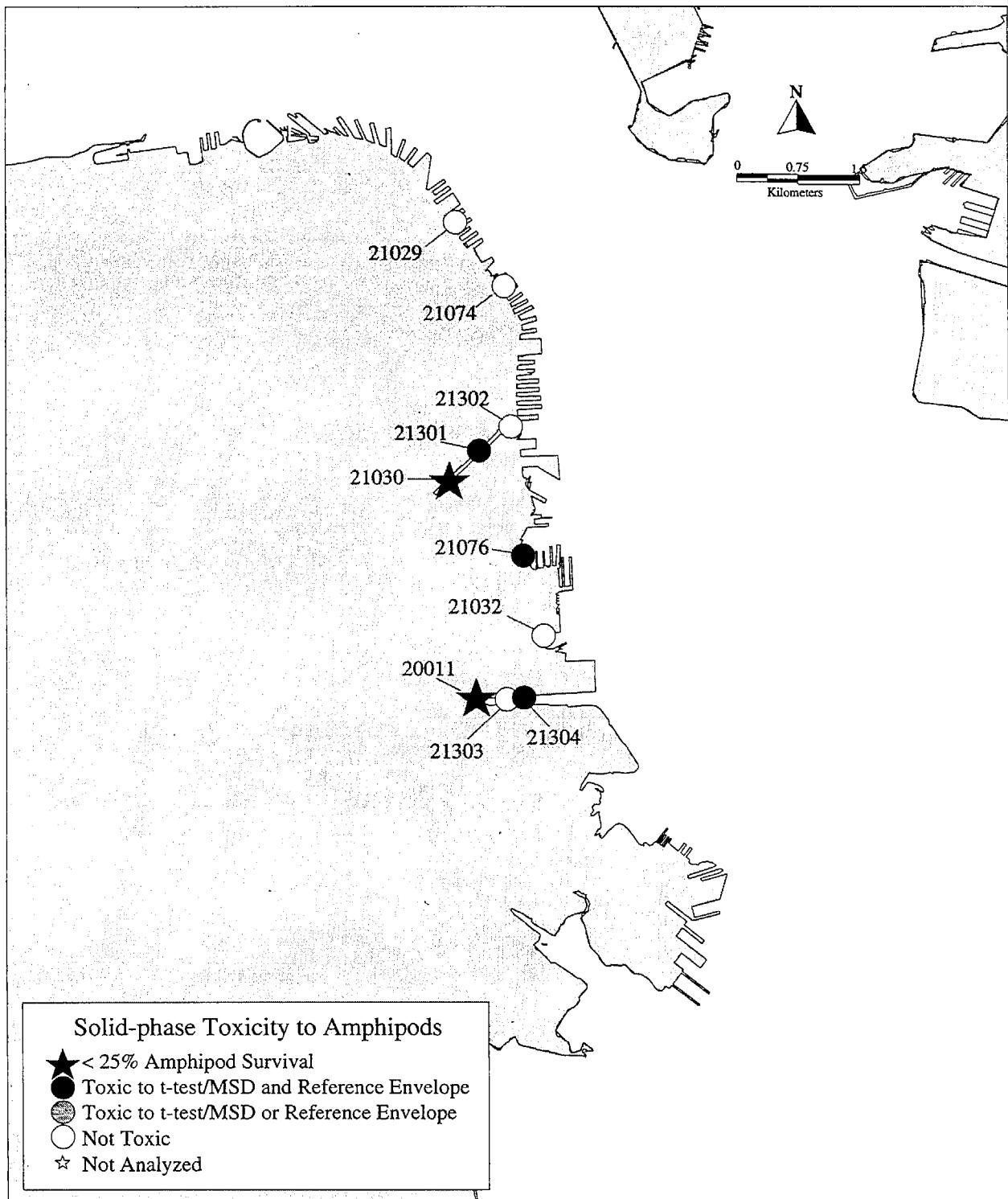


Figure 7f. Results of Amphipod Toxicity Confirmation for Stations in San Francisco.

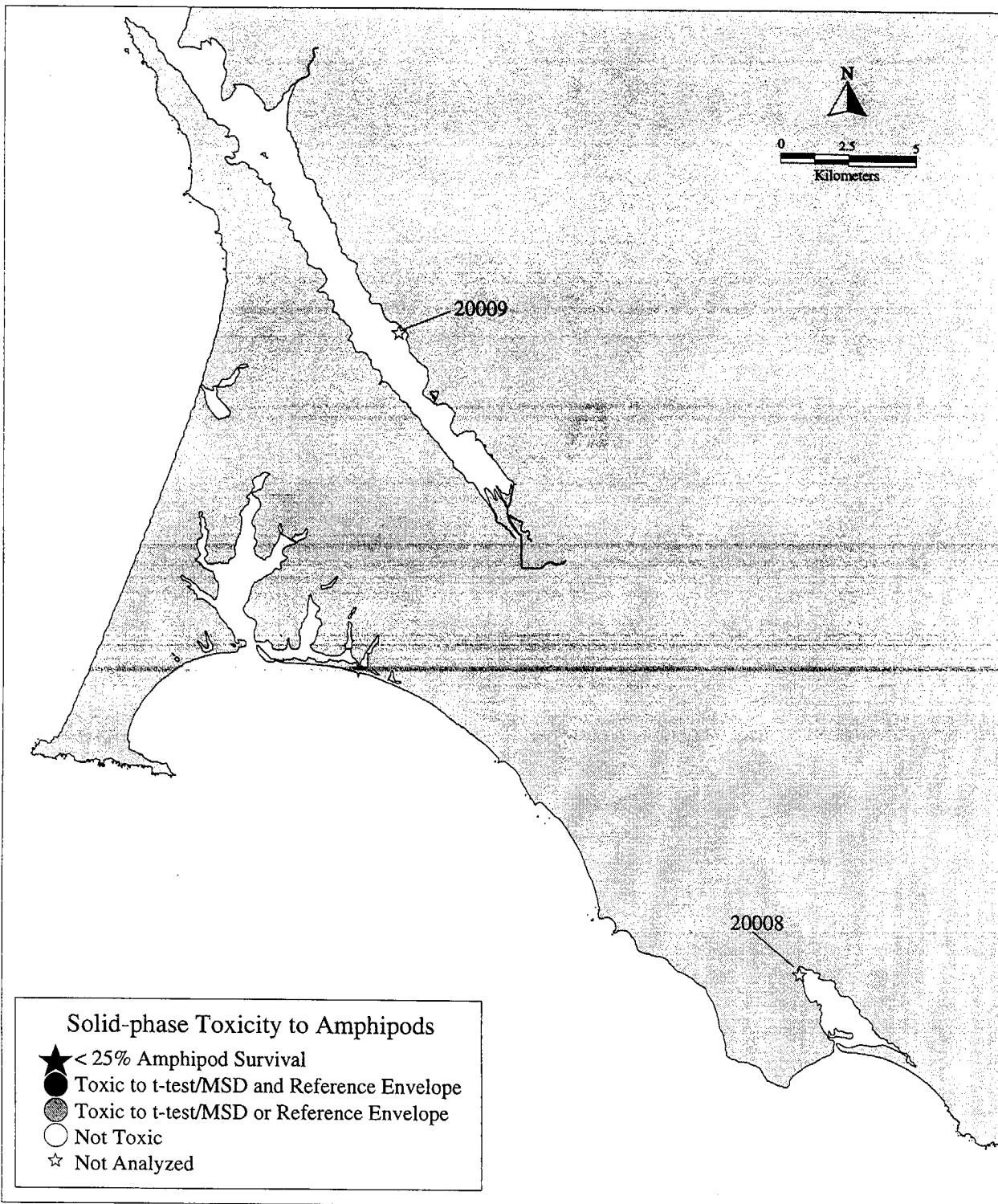


Figure 7g. Results of Amphipod Toxicity Confirmation for Stations in Tomales Bay and Bolinas Lagoon.

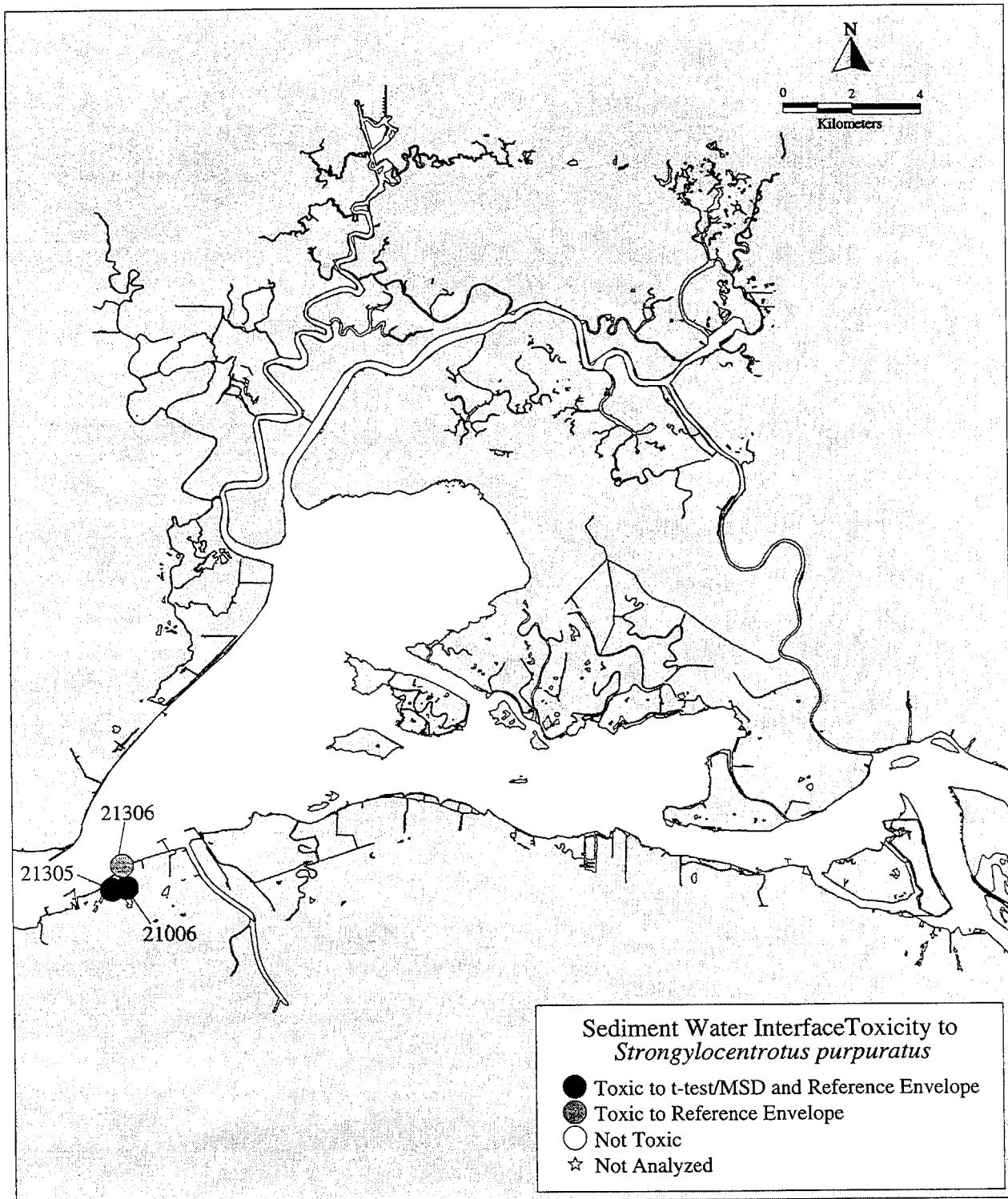


Figure 8a. Results of Sediment Water Interface Toxicity Confirmation for Stations in Suisun Bay.

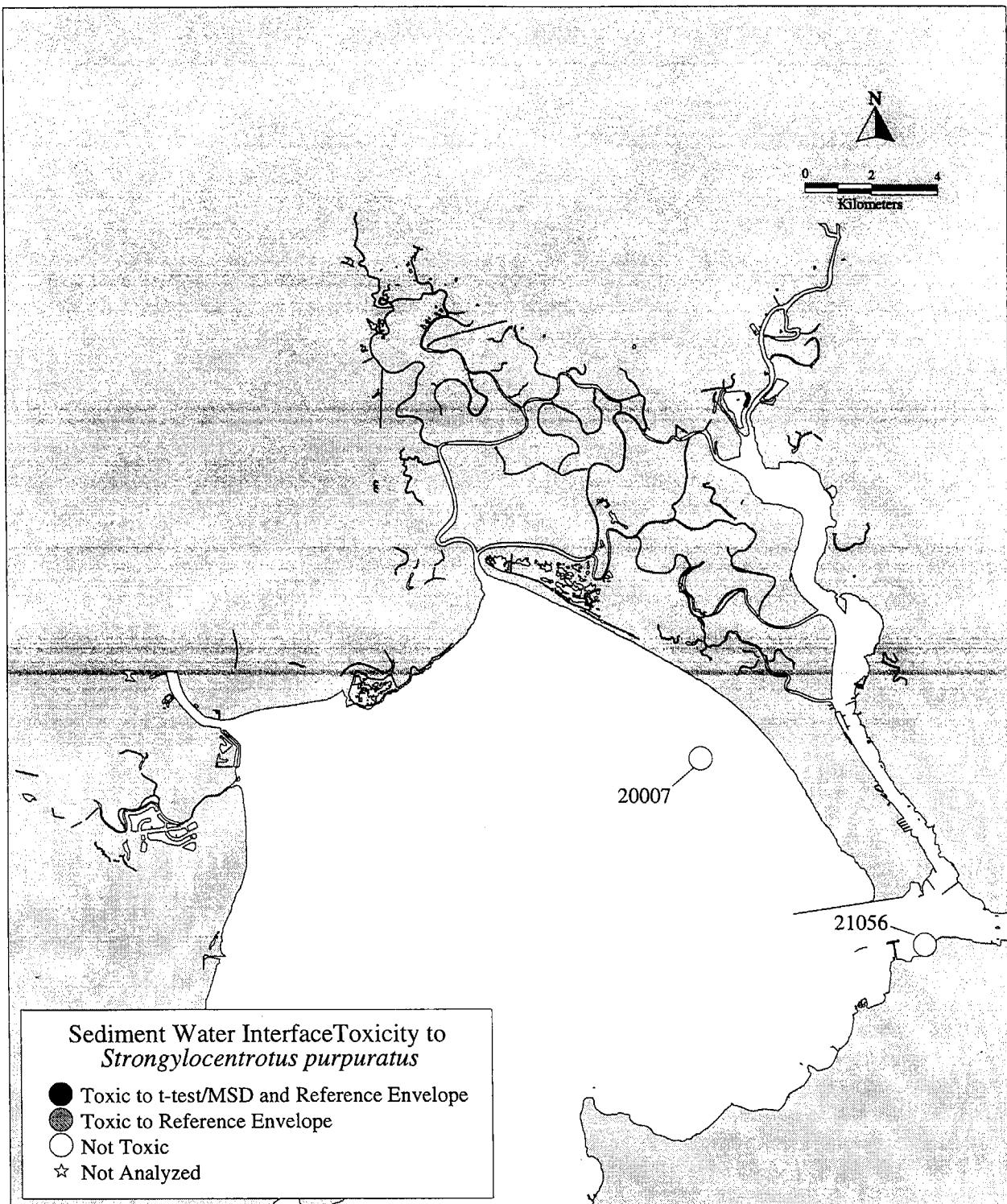


Figure 8b. Results of Sediment Water Interface Toxicity Confirmation for Stations in San Pablo Bay.

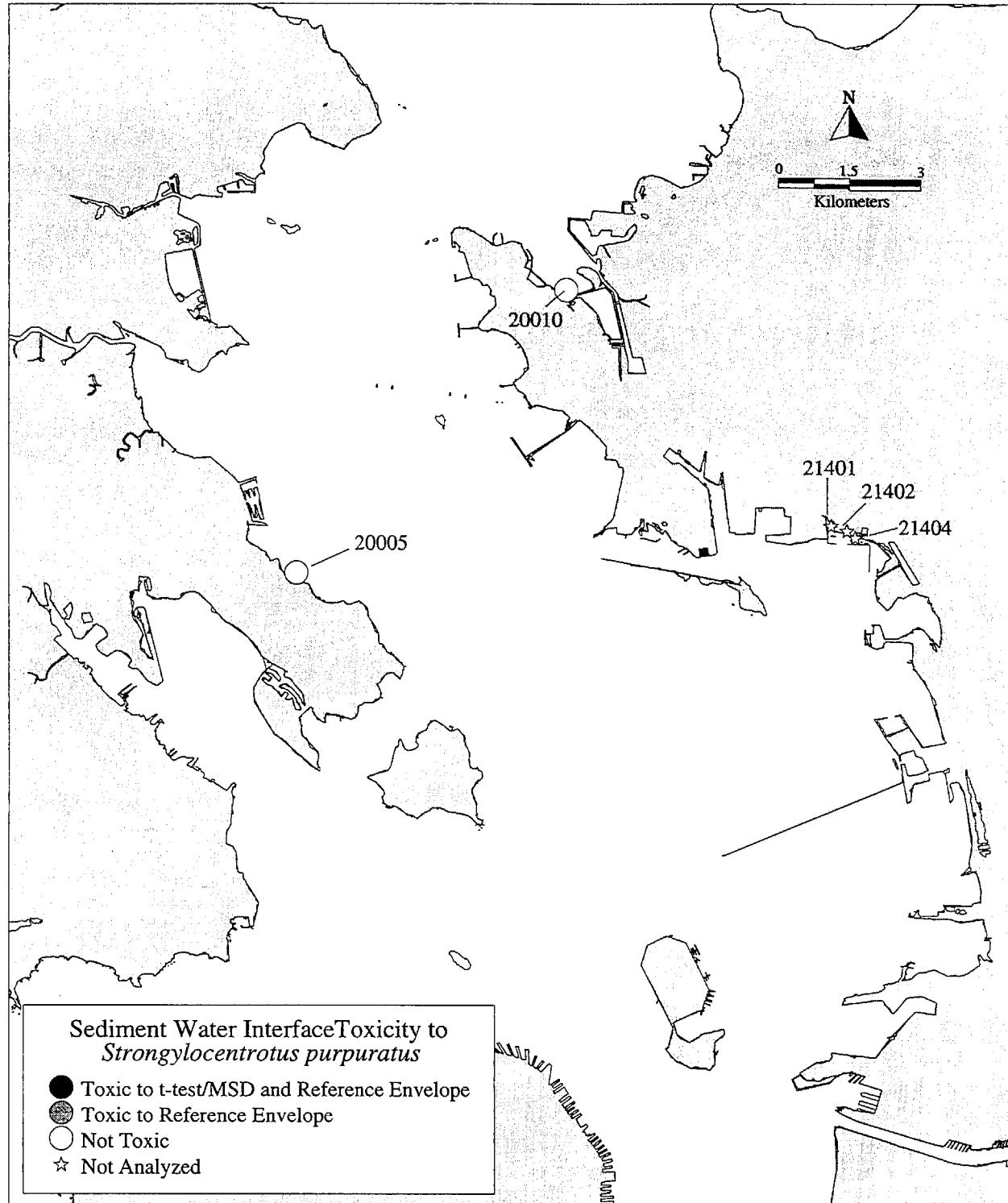


Figure 8c. Results of Sediment Water Interface Toxicity Confirmation for Stations in Central San Francisco Bay.

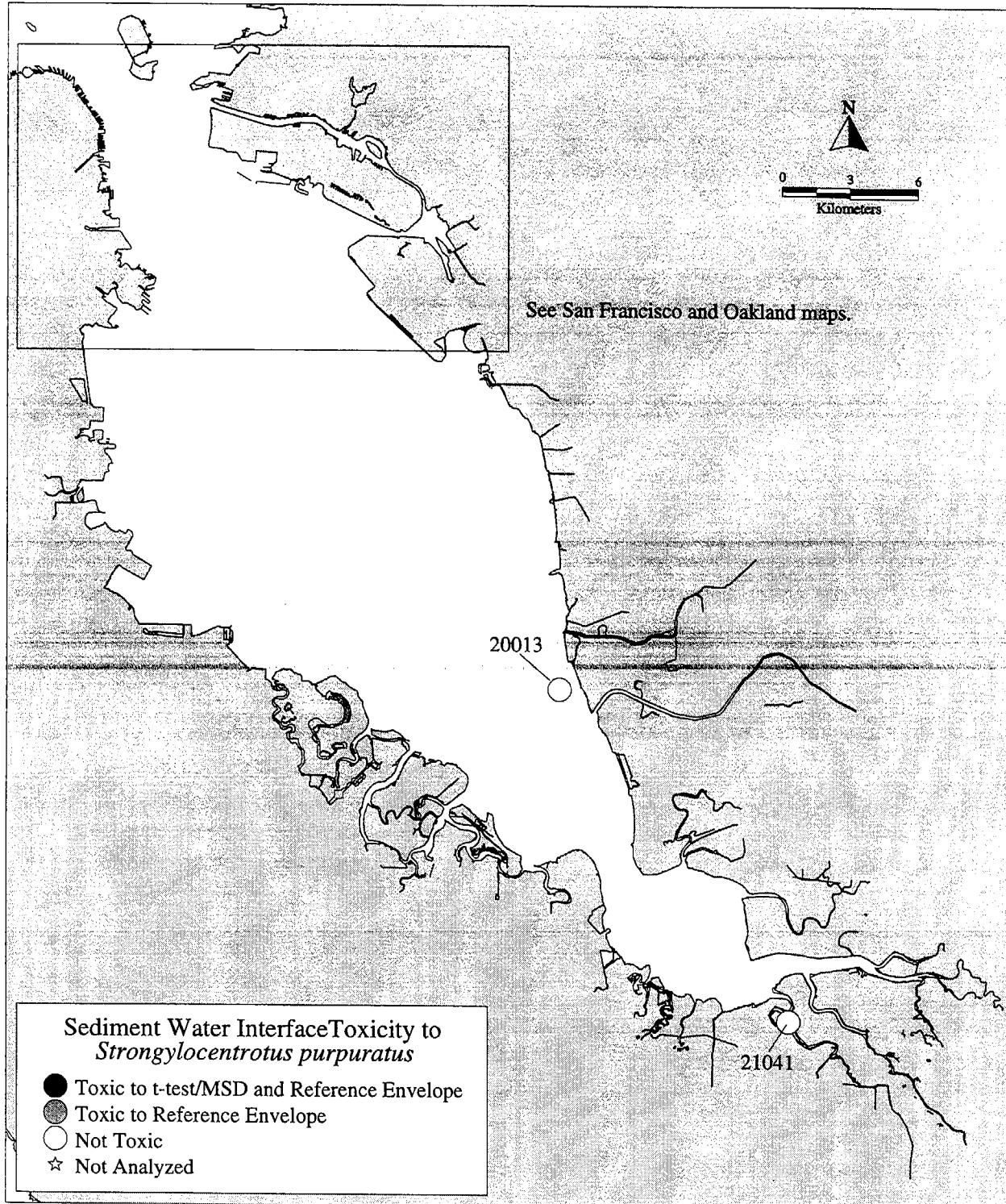


Figure 8d. Results of Sediment Water Interface Toxicity Confirmation for Stations in South San Francisco Bay.

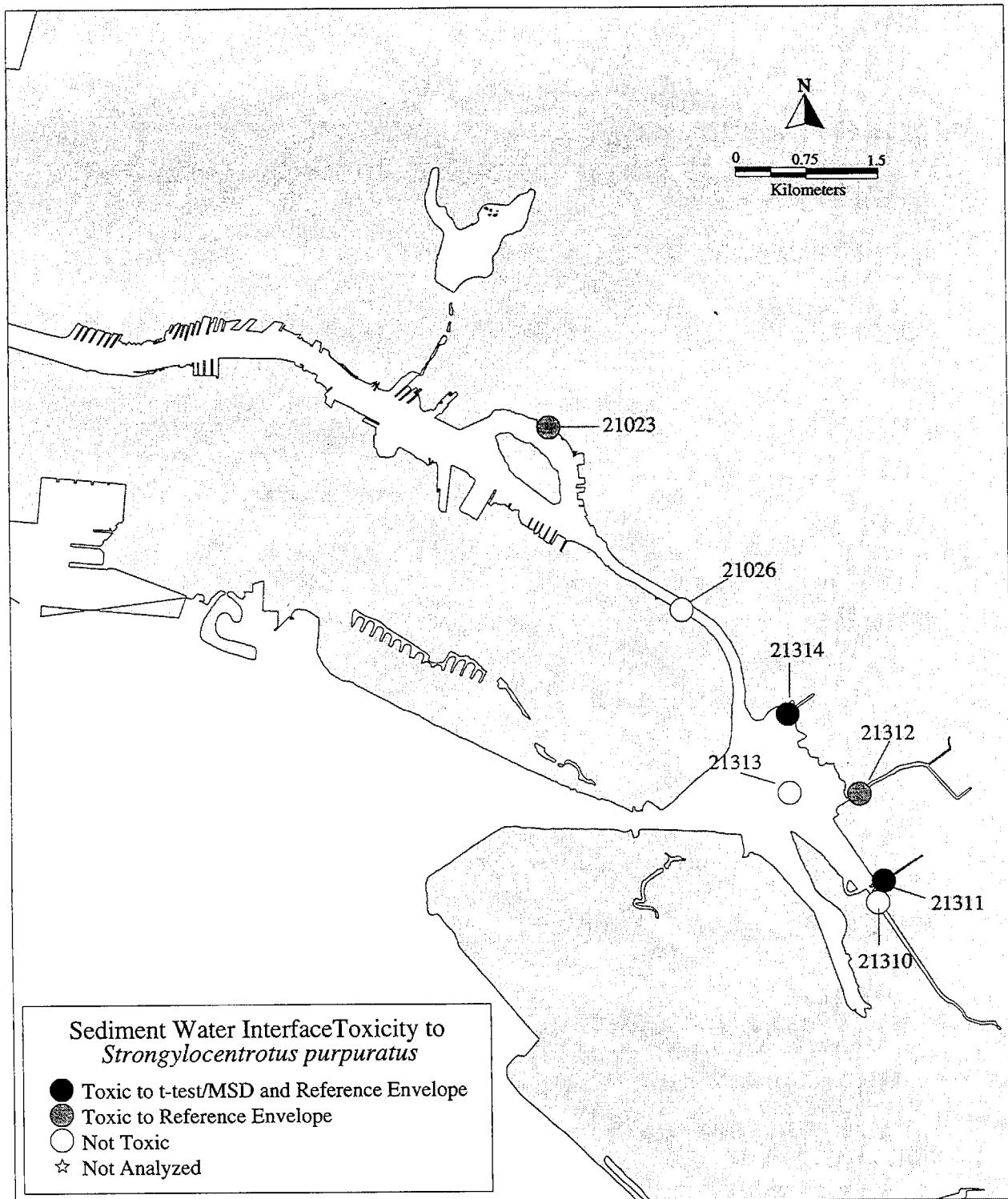


Figure 8e. Results of Sediment Water Interface Toxicity Confirmation for Stations in Oakland.

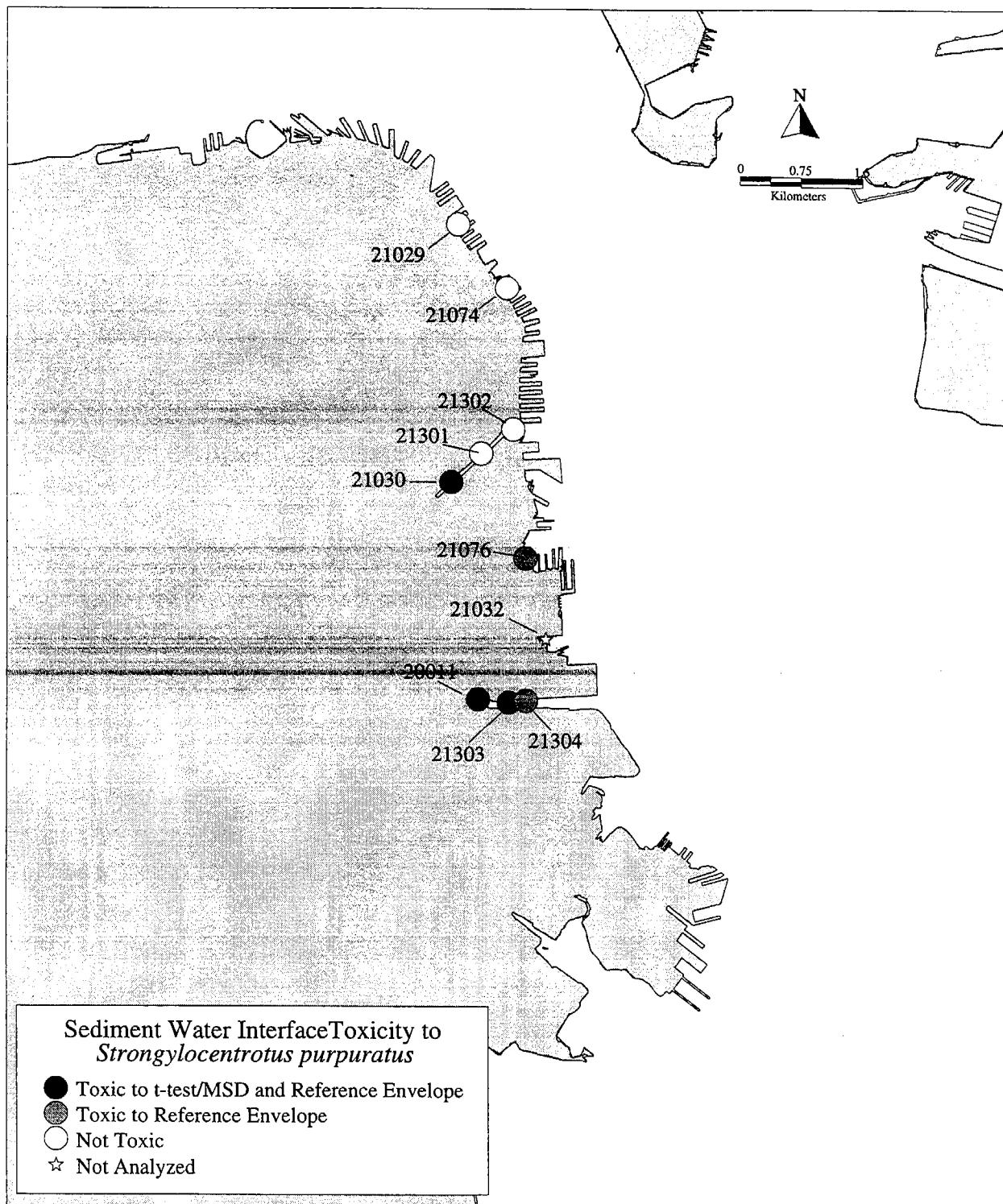


Figure 8f. Results of Sediment Water Interface Toxicity Confirmation for Stations in San Francisco.

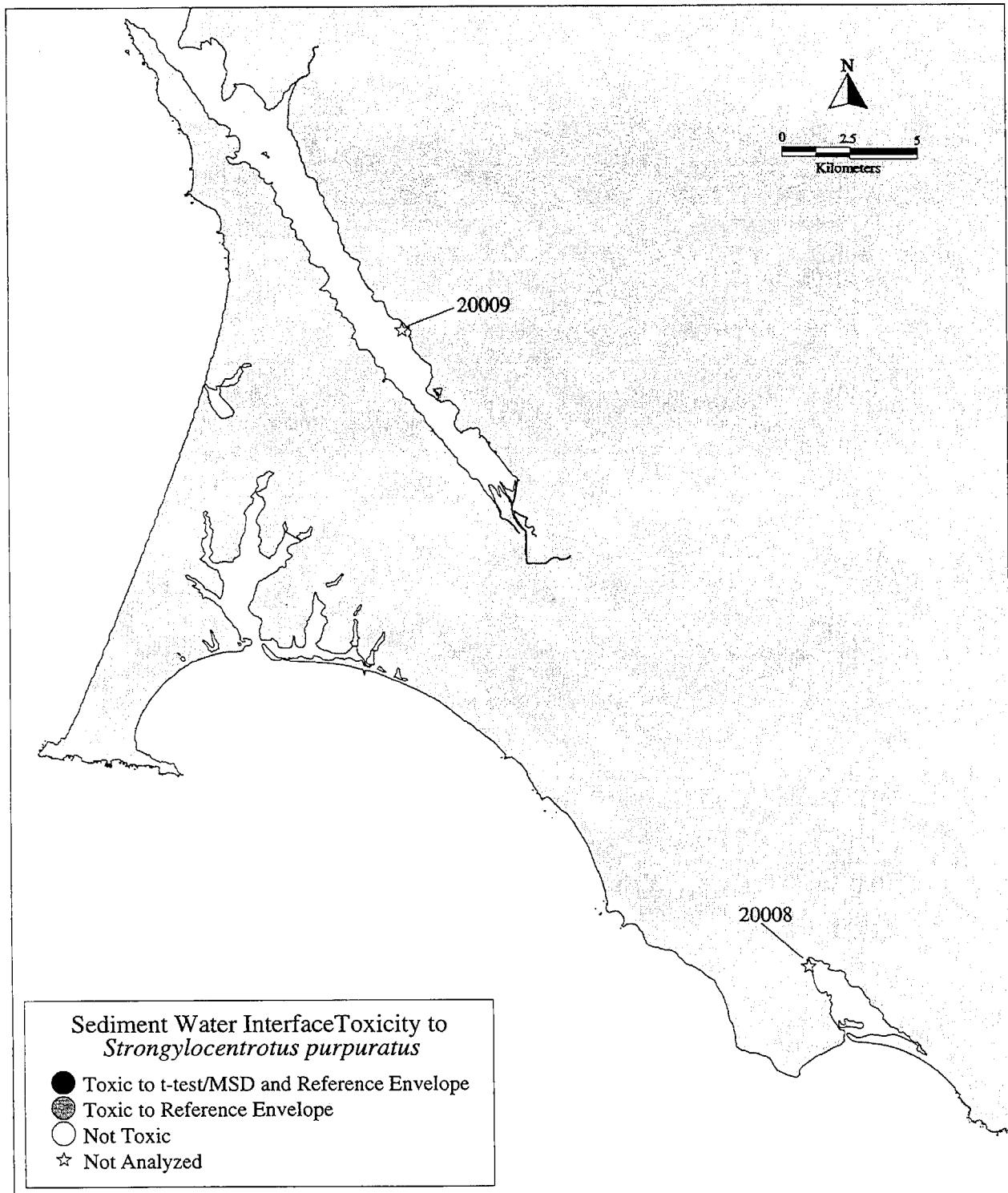


Figure 8g. Results of Sediment-Water Interface Toxicity Confirmation for Stations in Tomales Bay and Bolinas Lagoon.

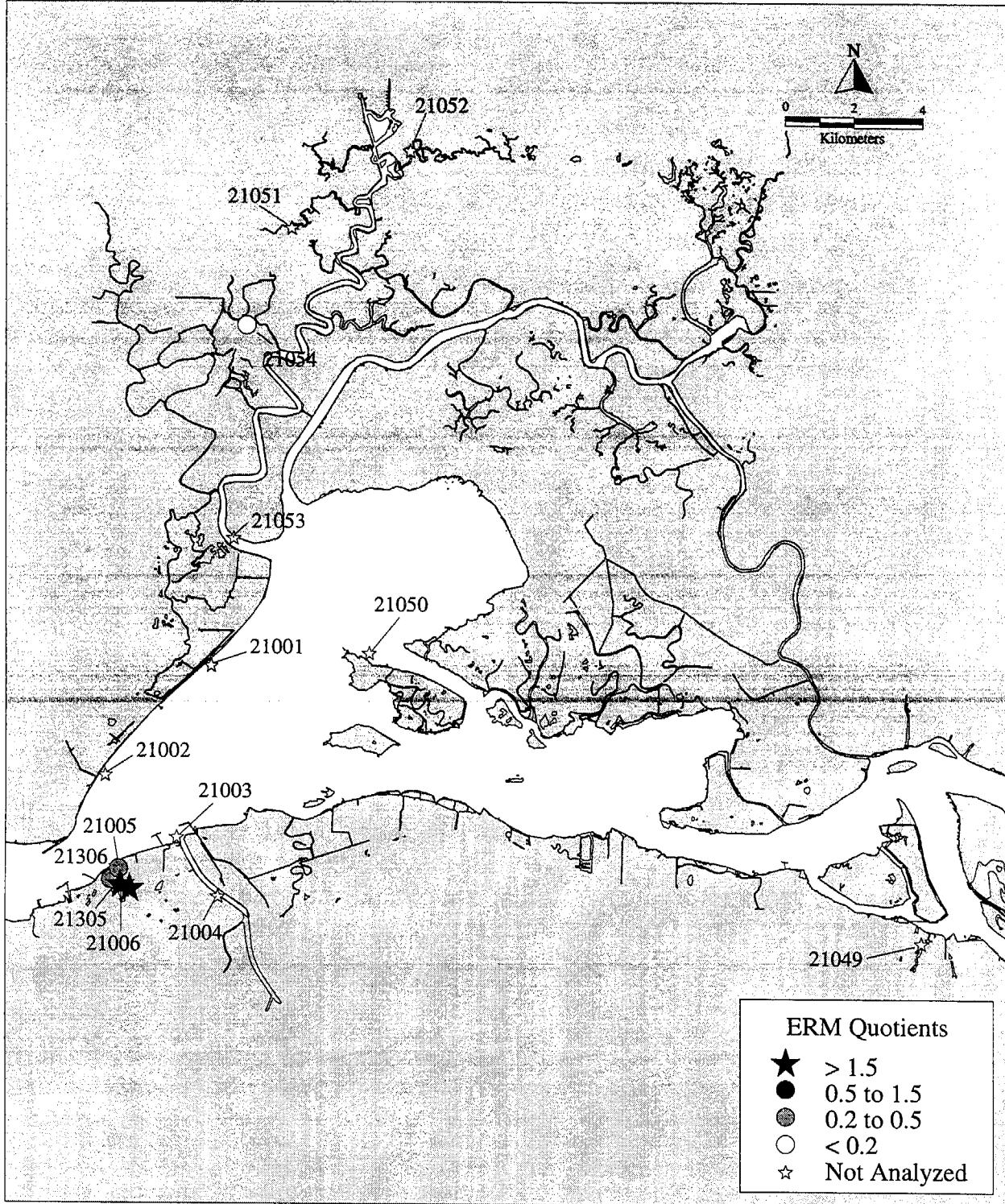


Figure 9a. Mean ERM Quotient Values for Stations in Suisun Bay.

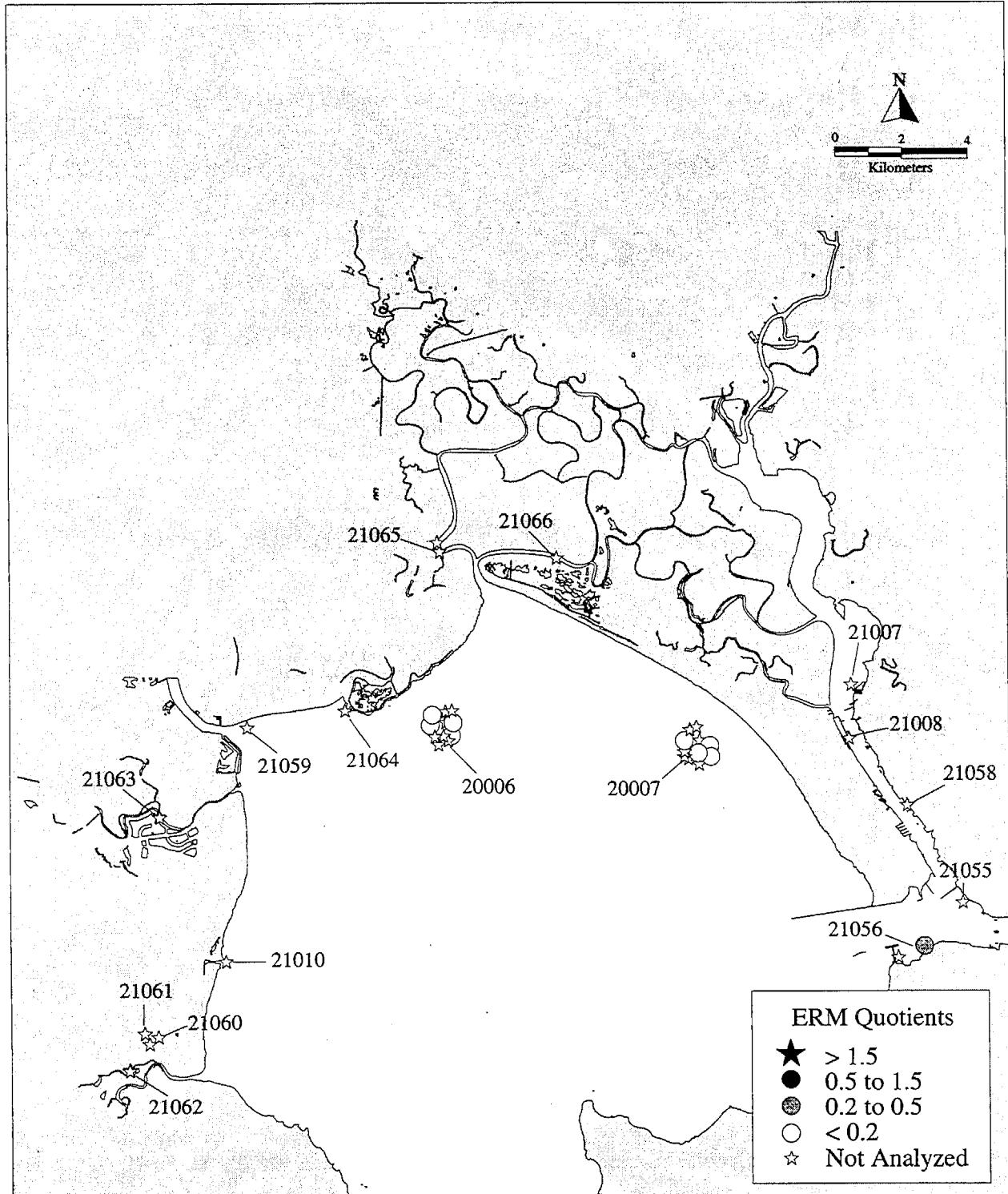


Figure 9b. Mean ERM Quotient Values for Stations in San Pablo Bay.

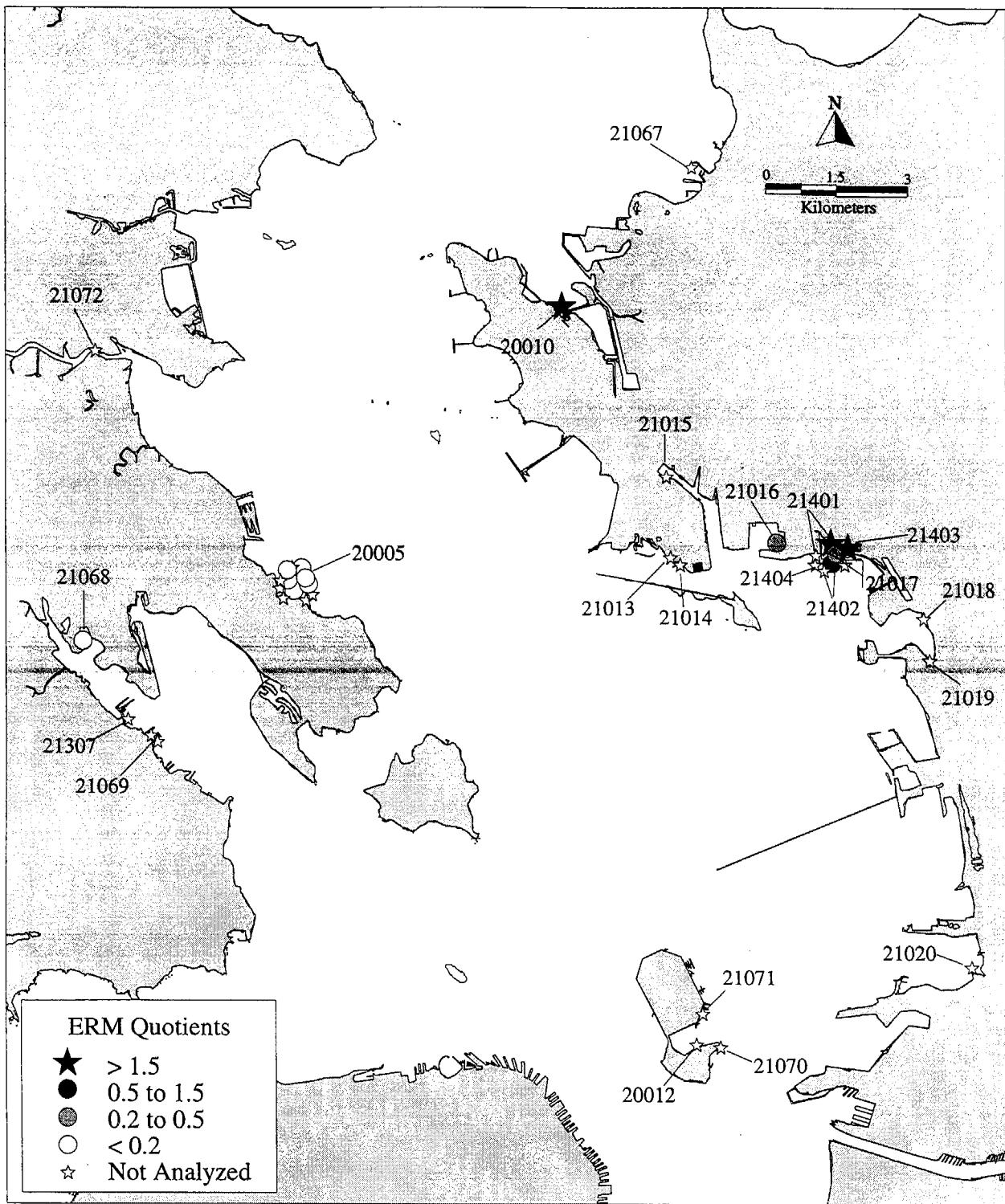


Figure 9c. Mean ERM Quotient Values for Stations in Central San Francisco Bay.

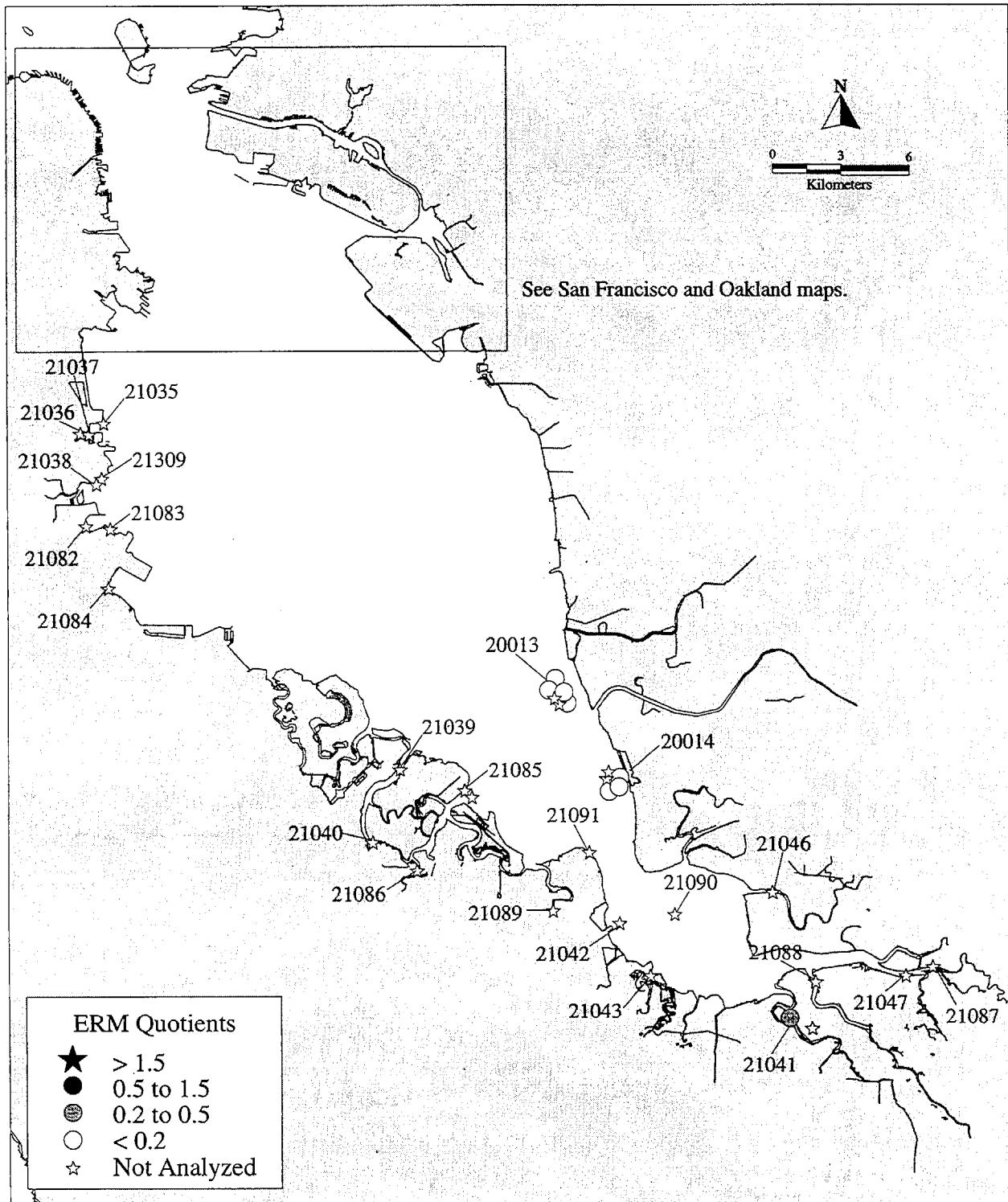


Figure 9d. Mean ERM Quotient Values for Stations in South San Francisco Bay.

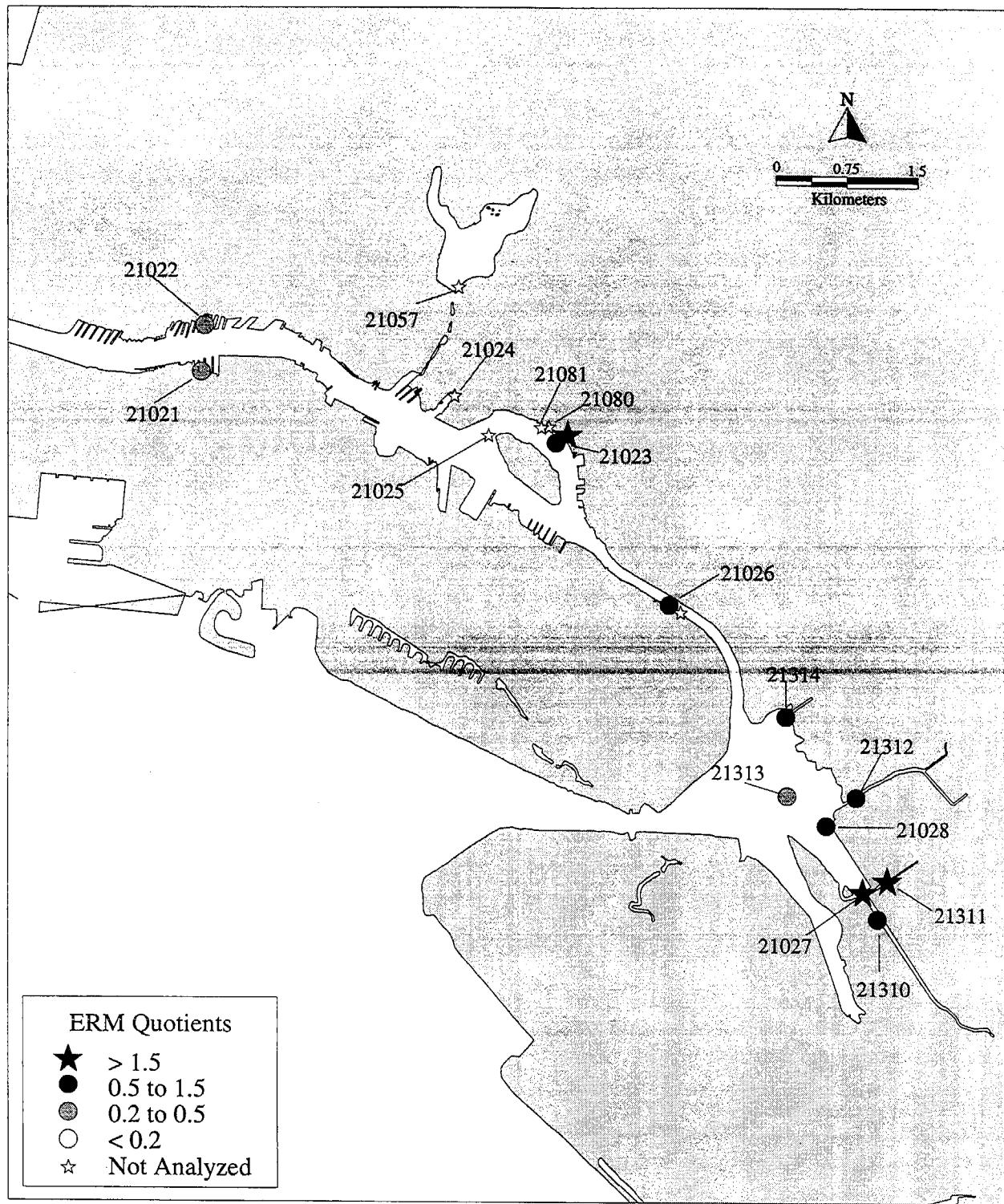


Figure 9e. Mean ERM Quotient Values for Stations in Oakland.

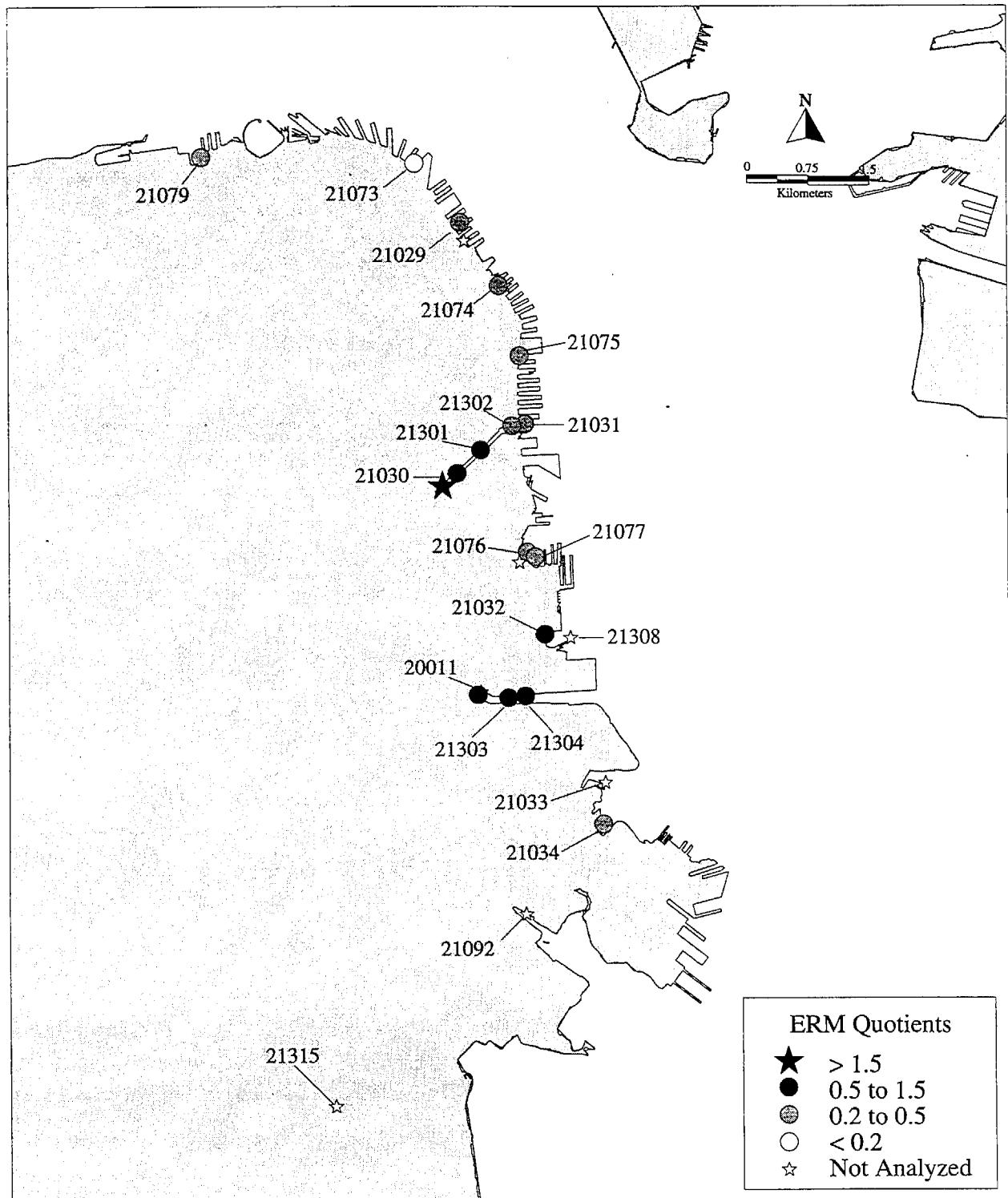


Figure 9f. Mean ERM Quotient Values for Stations in San Francisco.

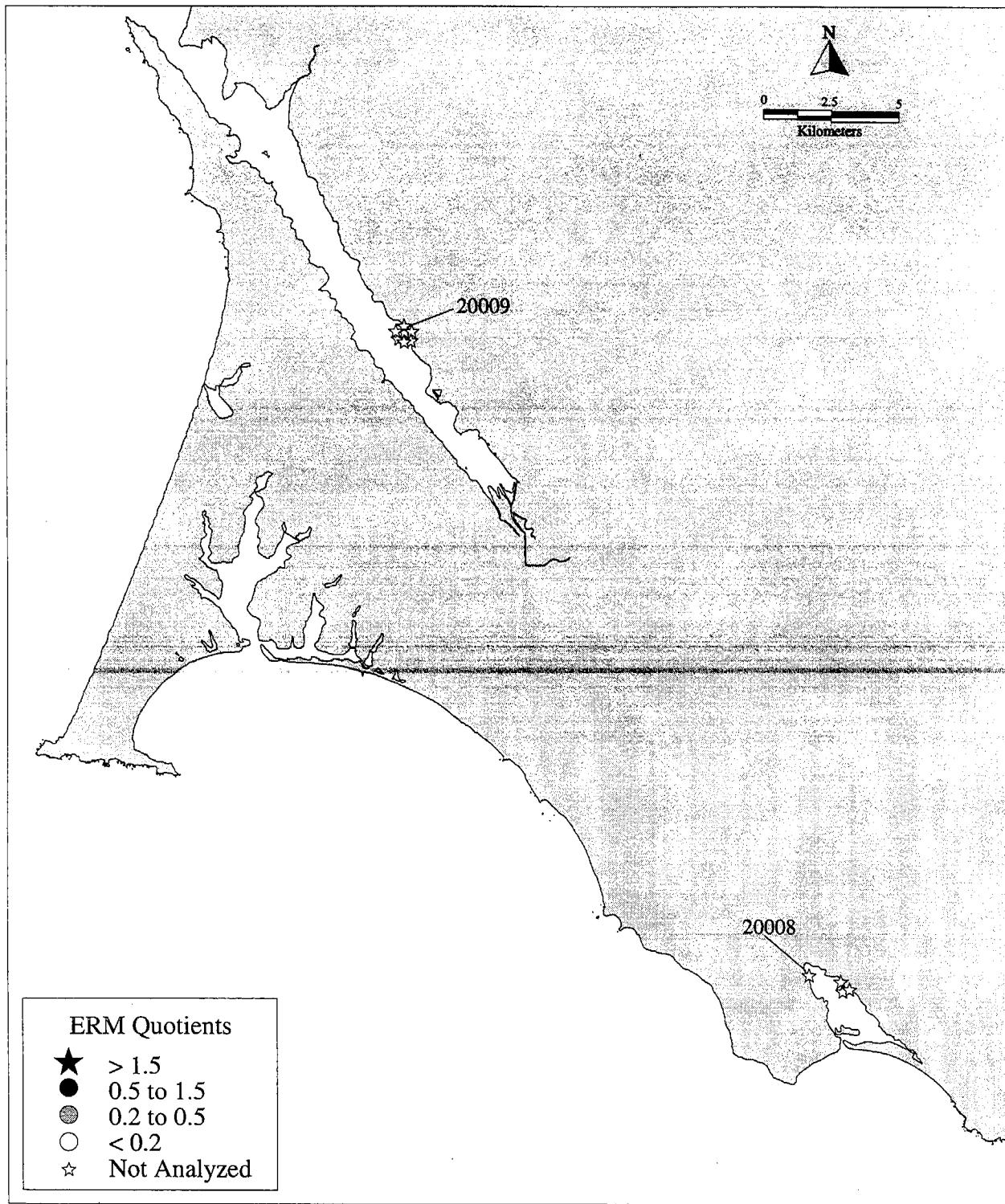


Figure 9g. Mean ERM Quotient Values for Stations in Tomales Bay and Bolinas Lagoon.

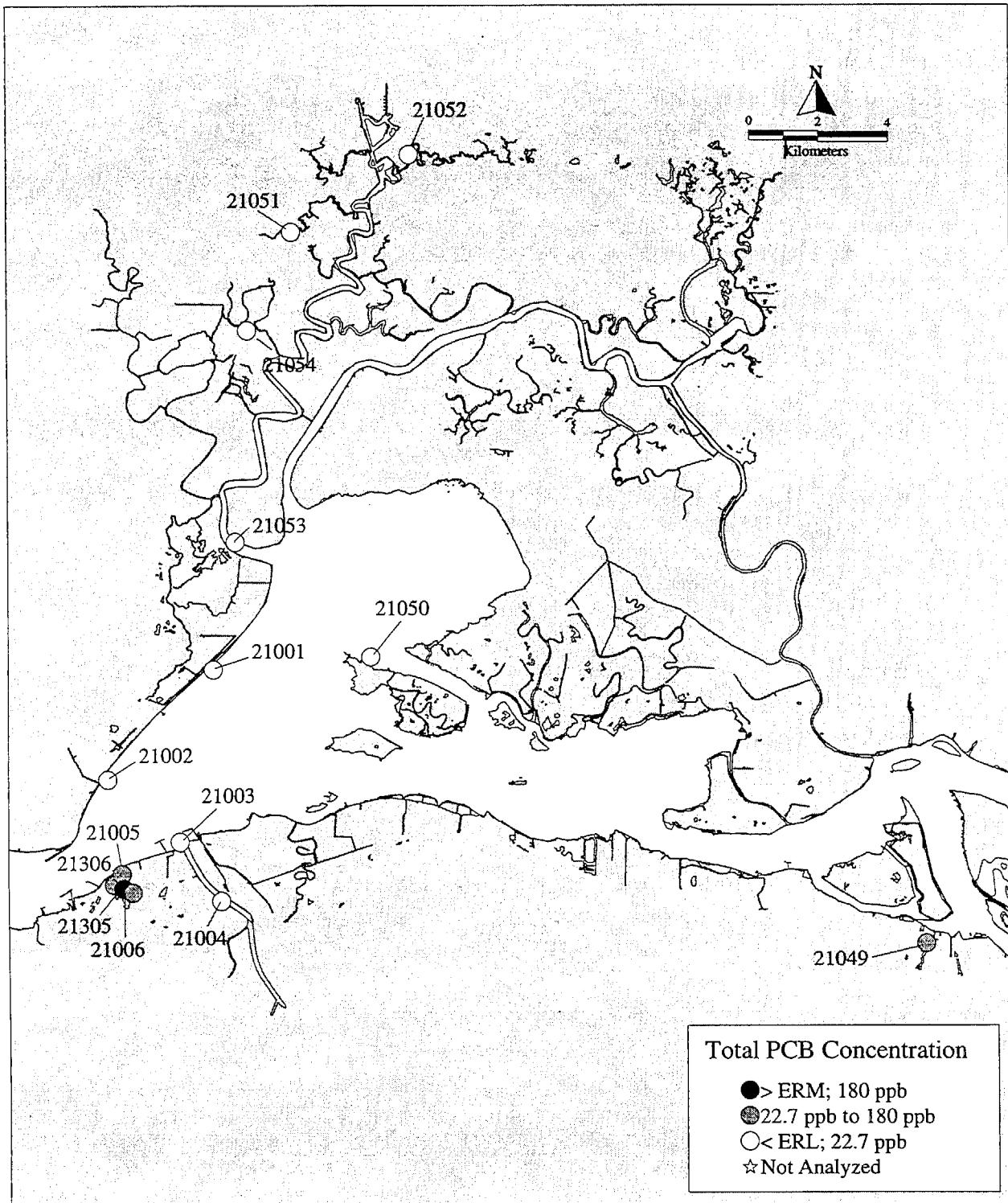


Figure 10a. Total PCB Concentrations at Stations in Suisun Bay.

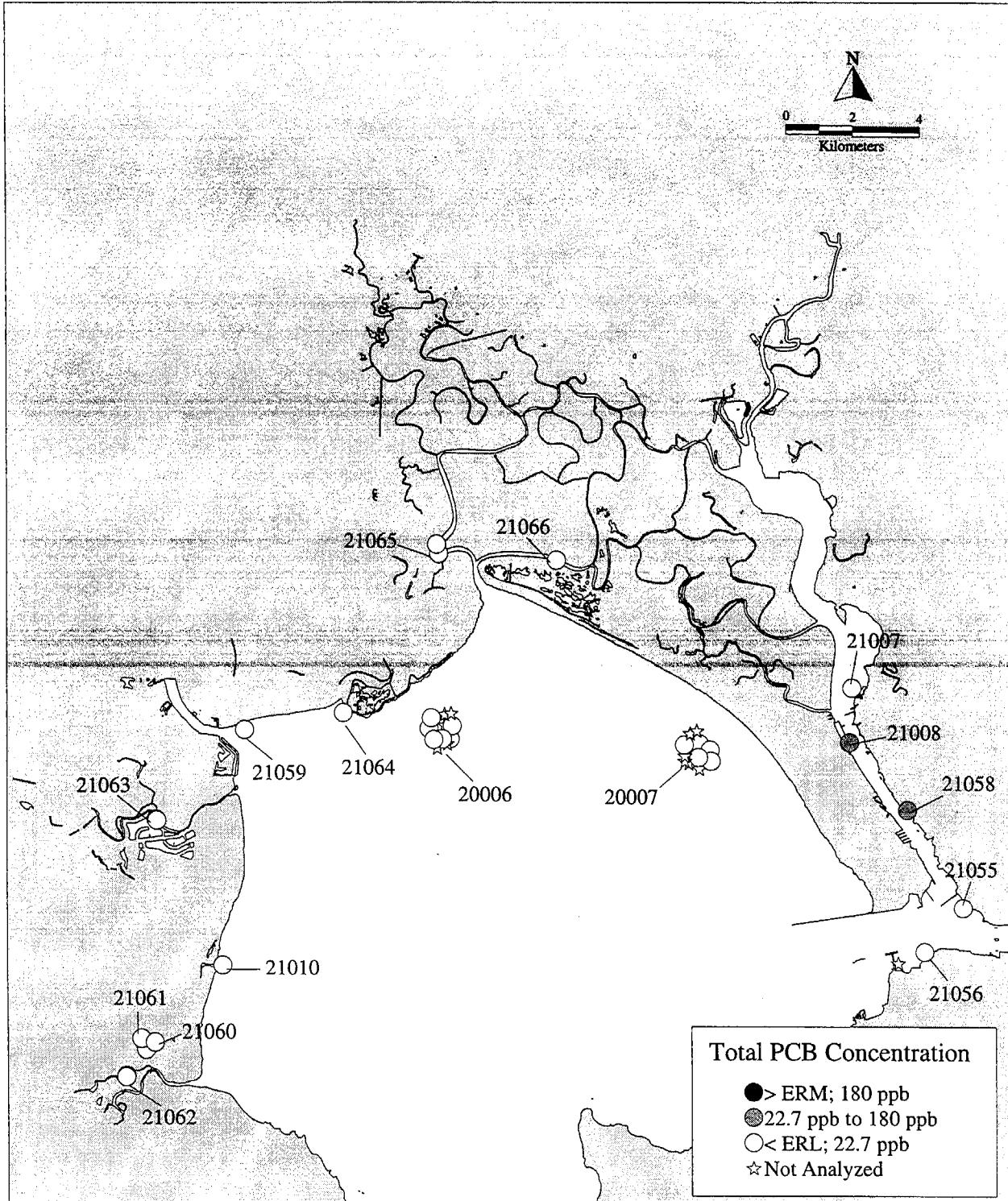


Figure 10b. Total PCB Concentrations at Stations in San Pablo Bay.

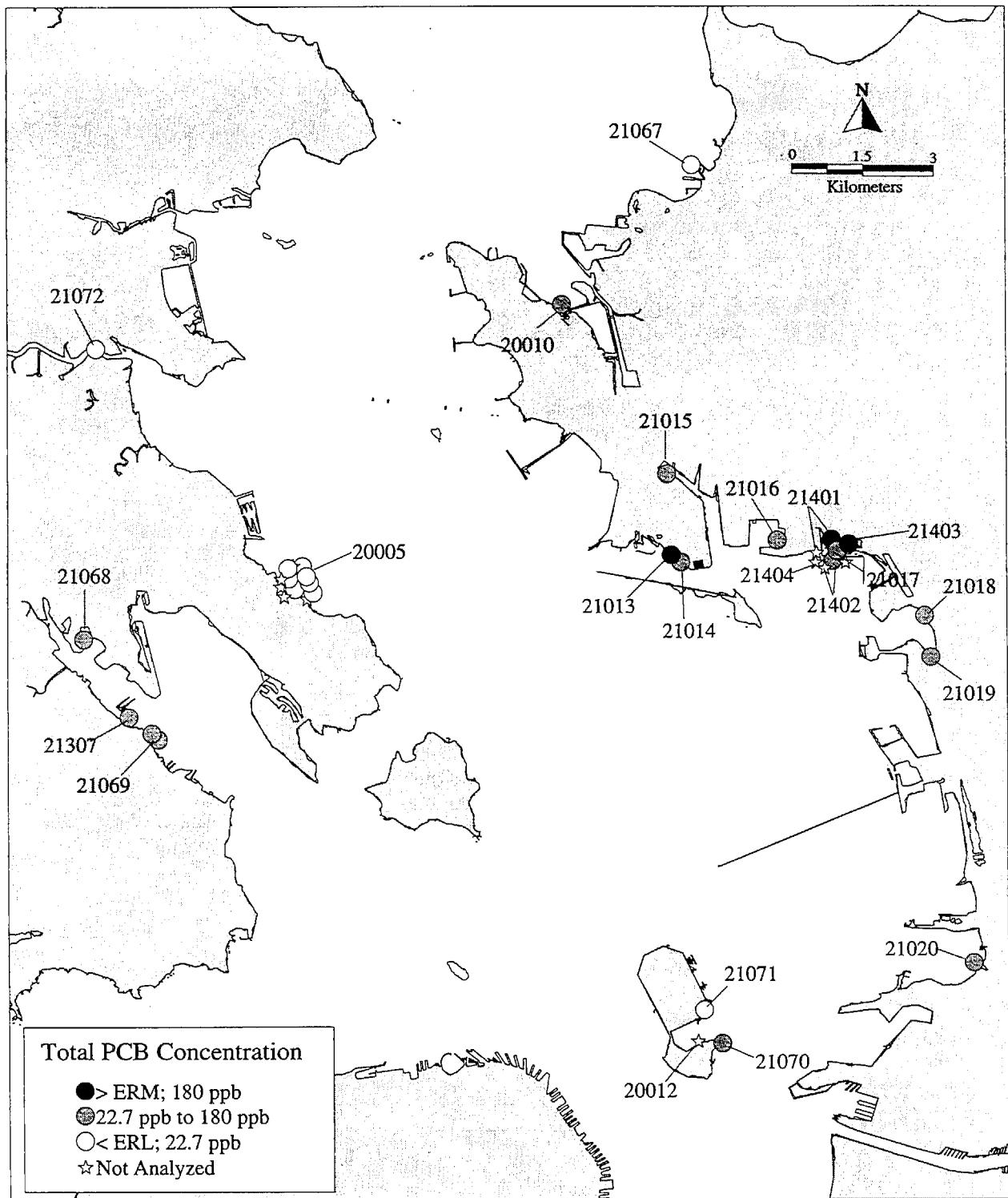


Figure 10c. Total PCB Concentrations at Stations in Central San Francisco Bay.

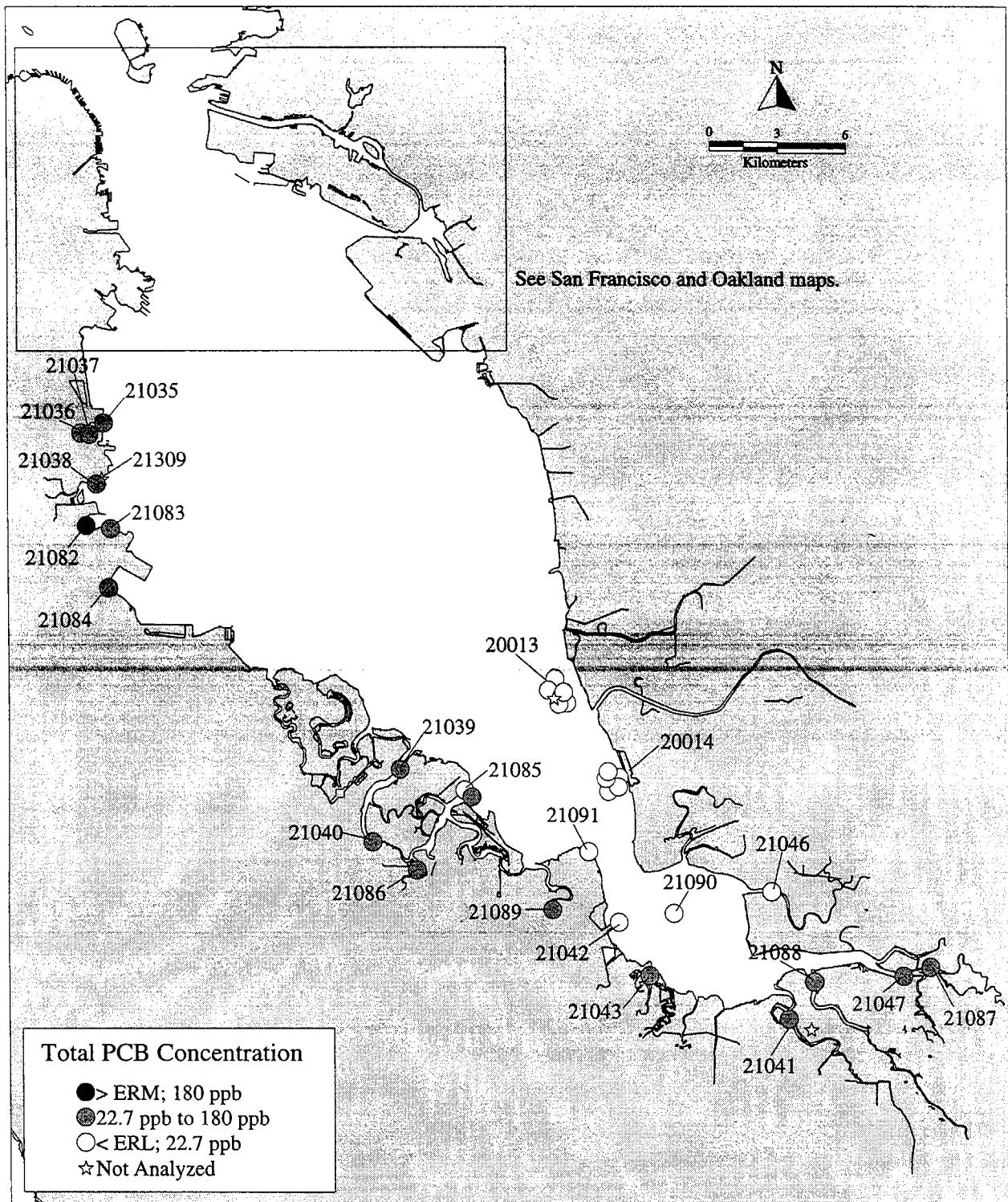


Figure 10d. Total PCB Concentrations at Stations in South San Francisco Bay.

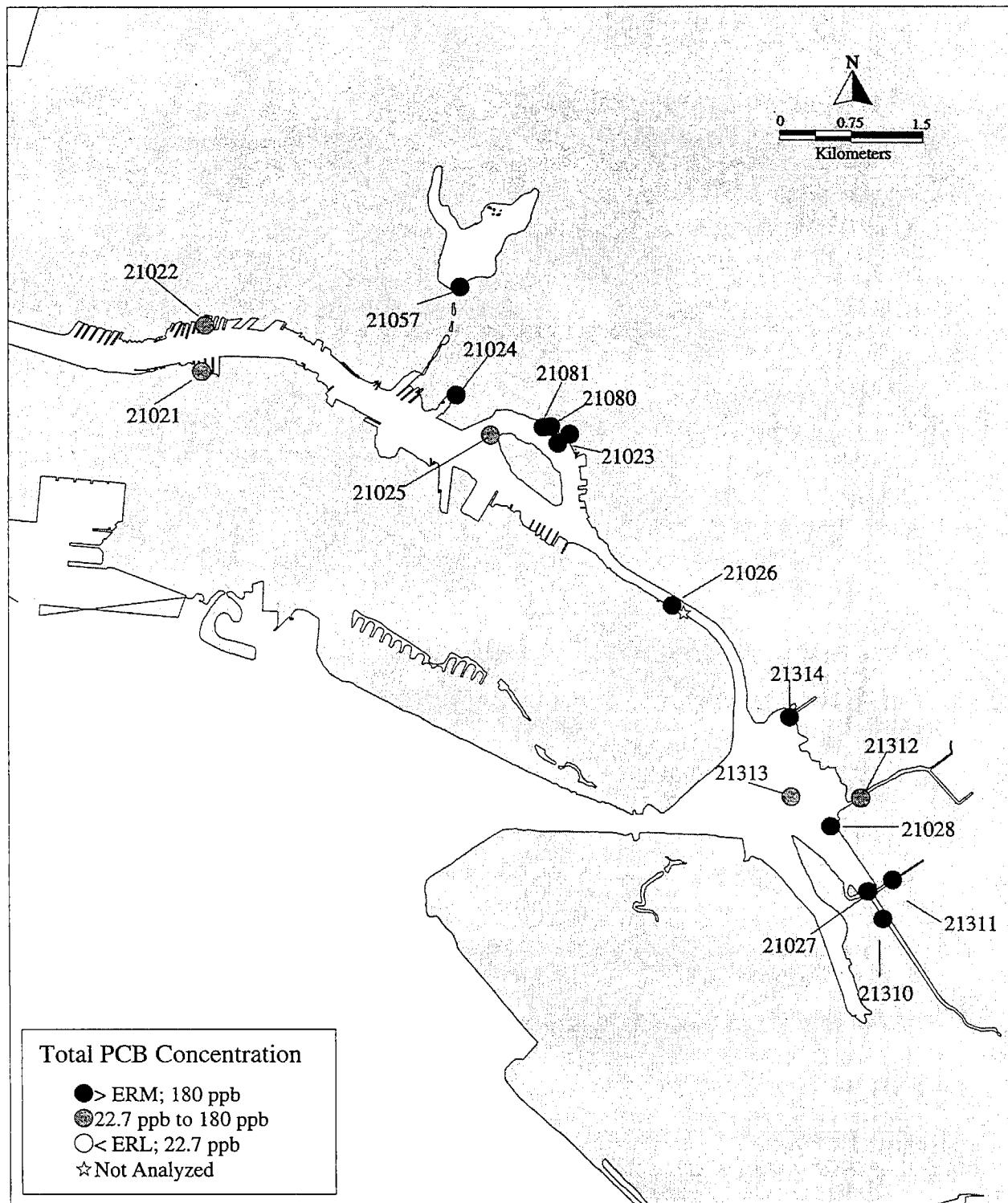


Figure 10e. Total PCB Concentrations at Stations in Oakland.

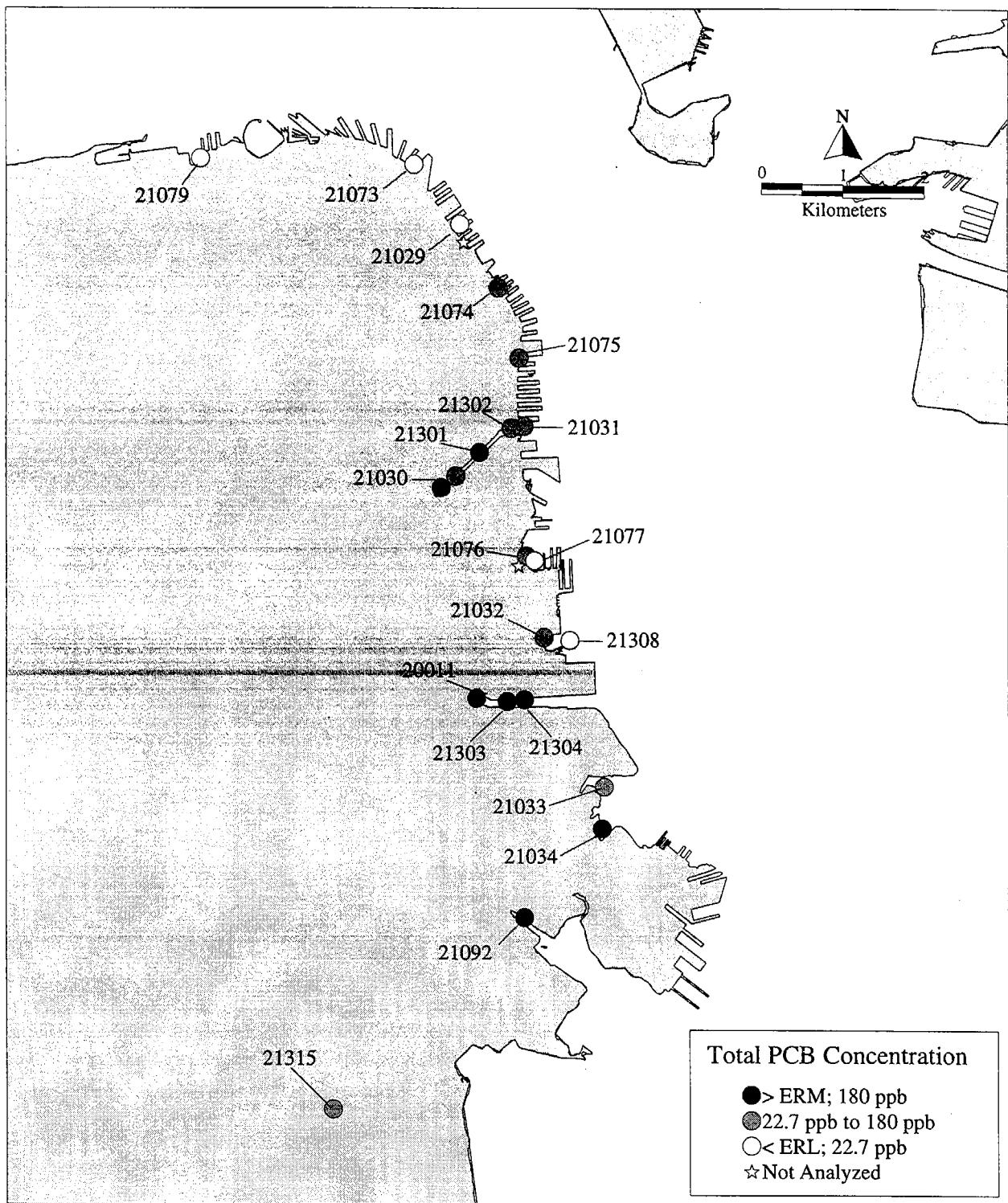


Figure 10f. Total PCB Concentrations at Stations in San Francisco.

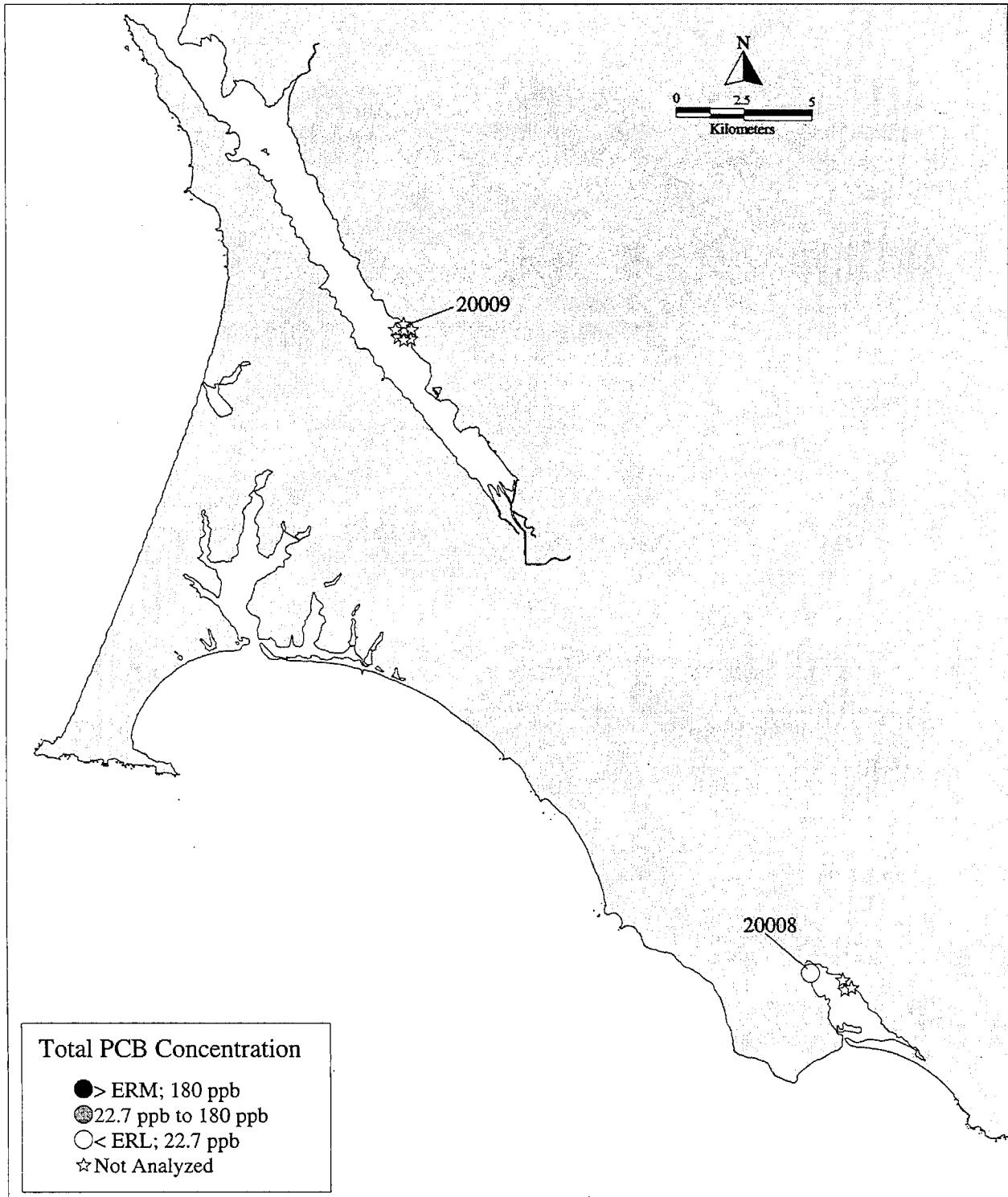


Figure 10g. Total PCB Concentrations at Stations in Tomales Bay and Bolinas Lagoon.

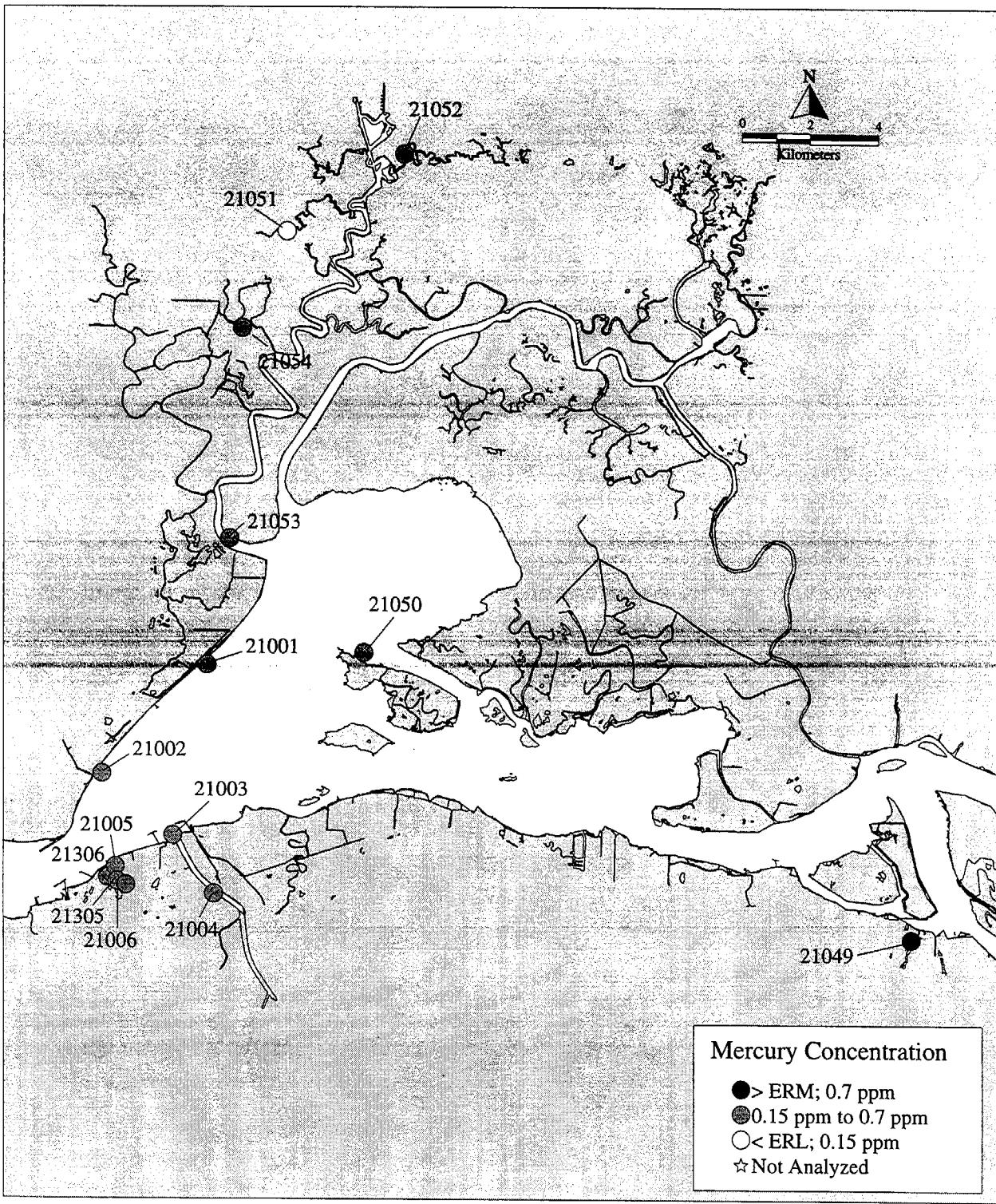


Figure 11a. Mercury Concentrations at Stations in Suisun Bay.

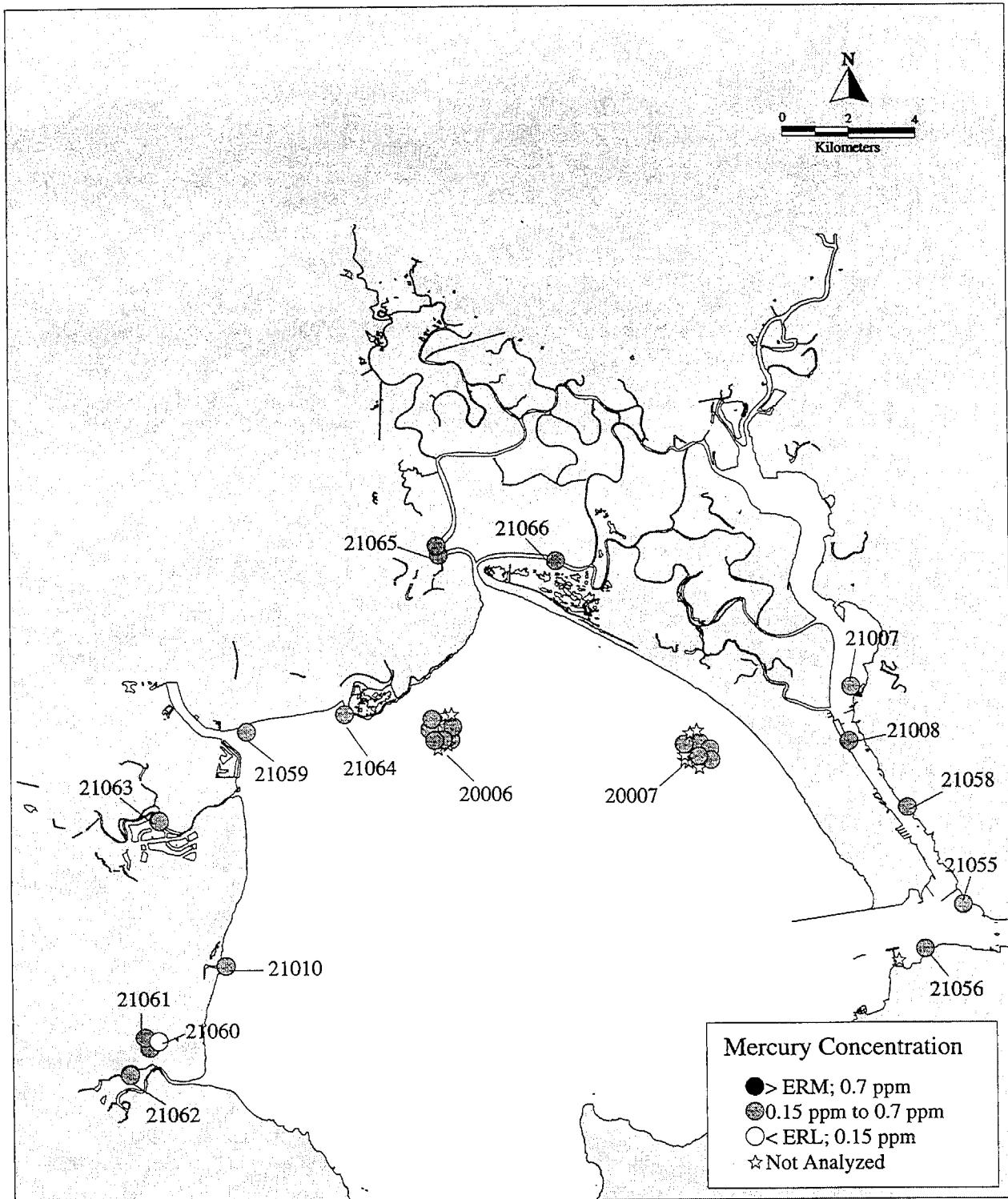


Figure 11b. Mercury Concentrations at Stations in San Pablo Bay.

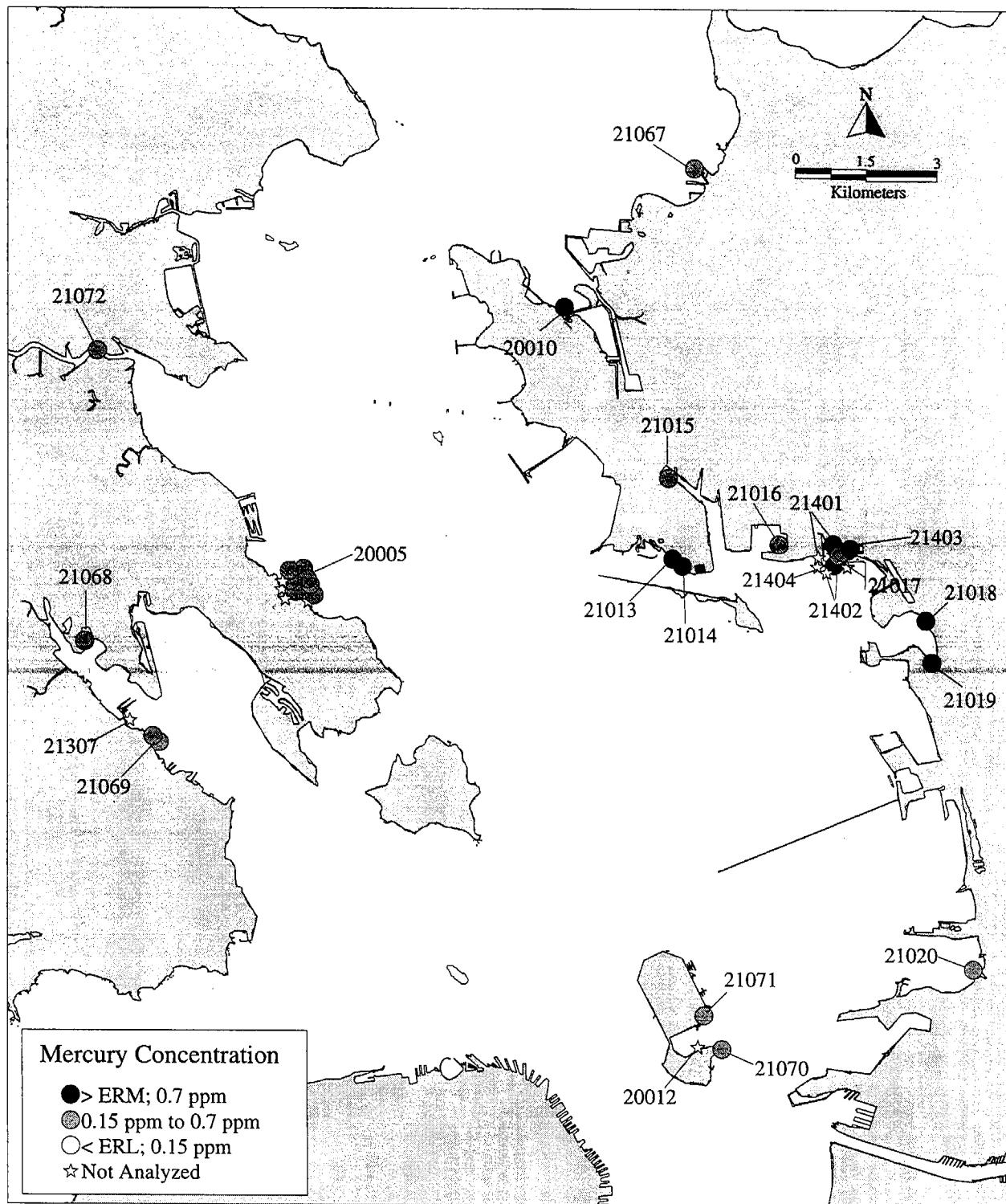


Figure 11c. Mercury Concentrations at Stations in Central San Francisco Bay.

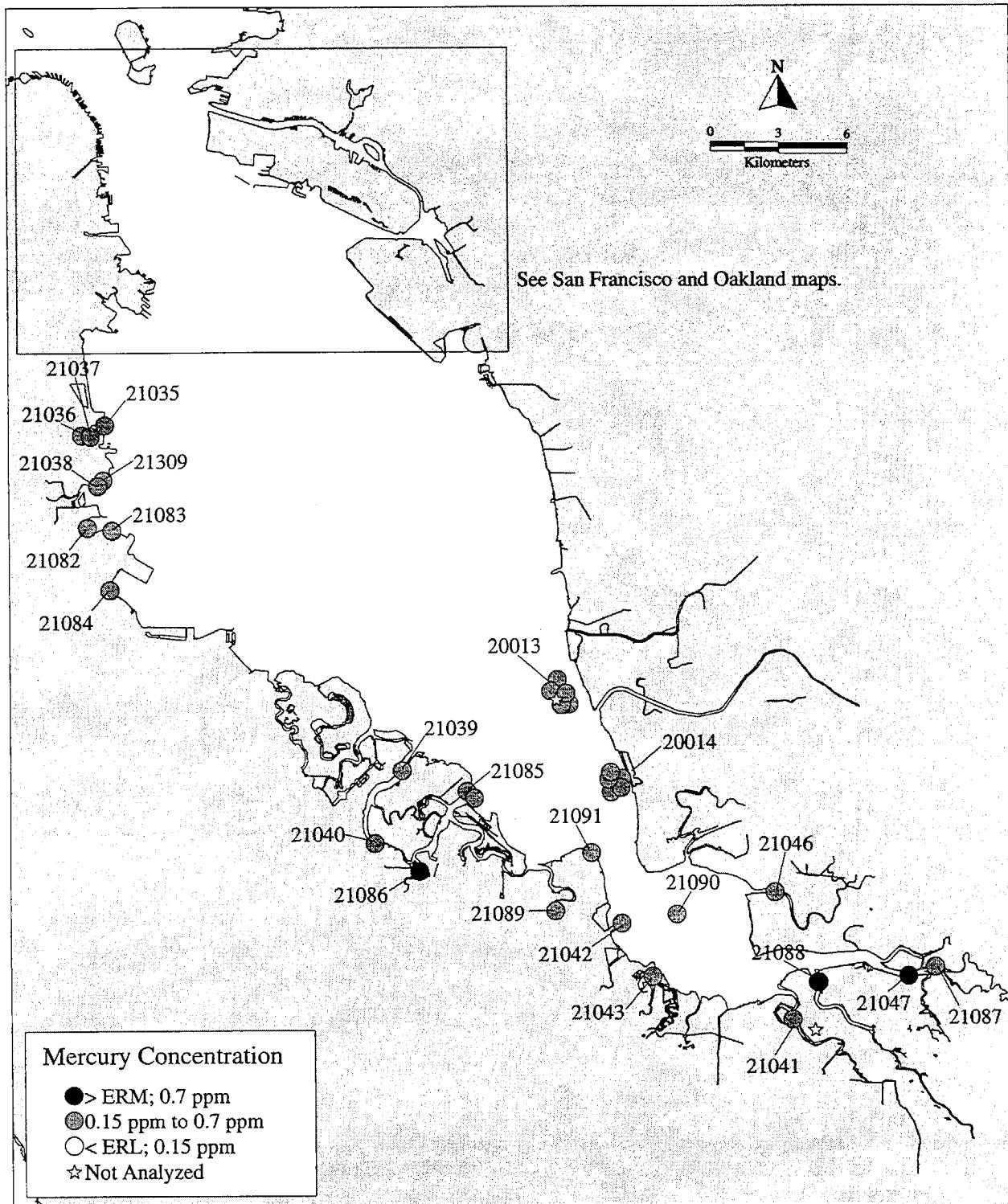


Figure 11d. Mercury Concentrations at Stations in South San Francisco Bay.

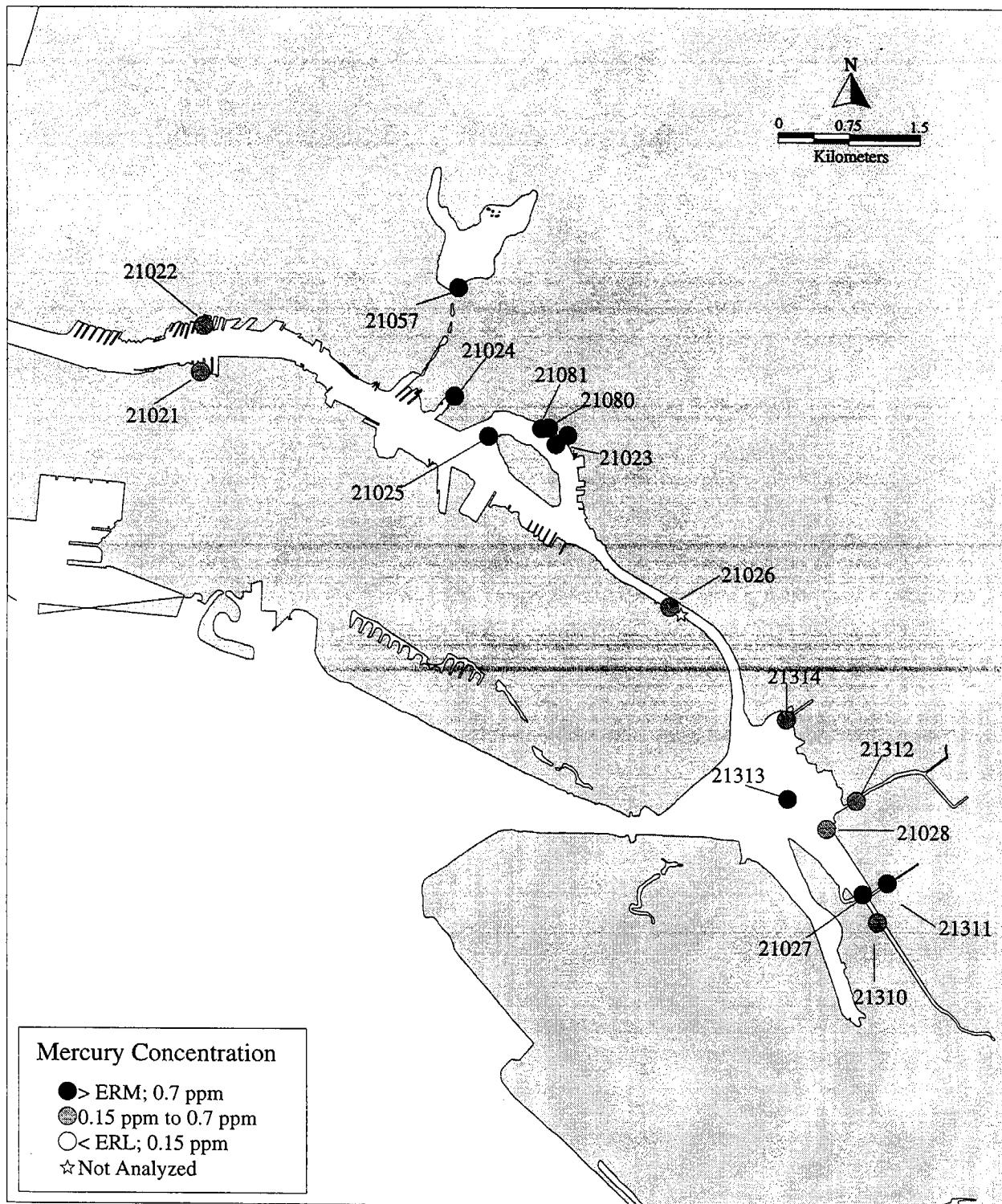


Figure 11e. Mercury Concentrations at Stations in Oakland.

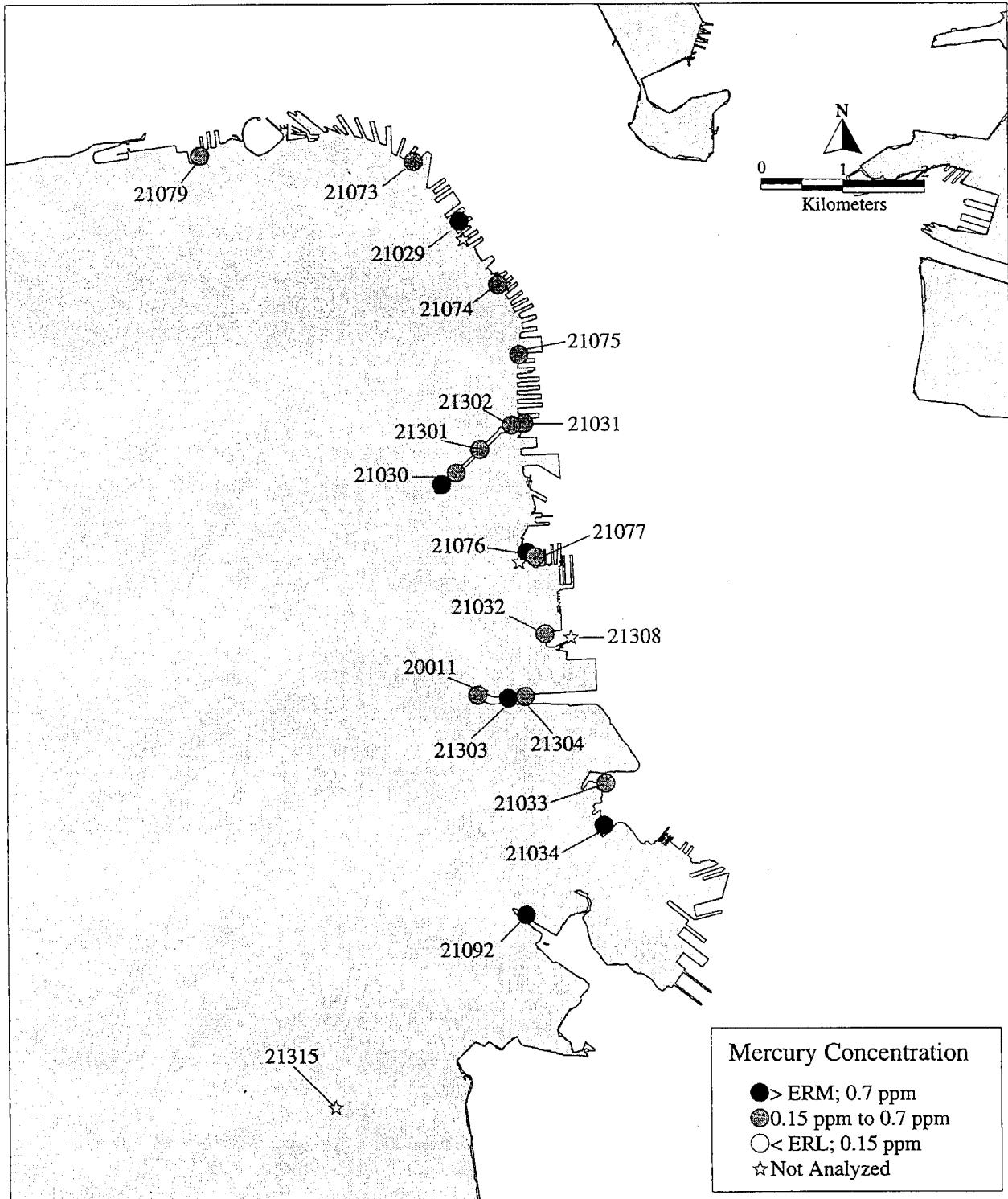


Figure 11f. Mercury Concentrations at Stations in San Francisco.

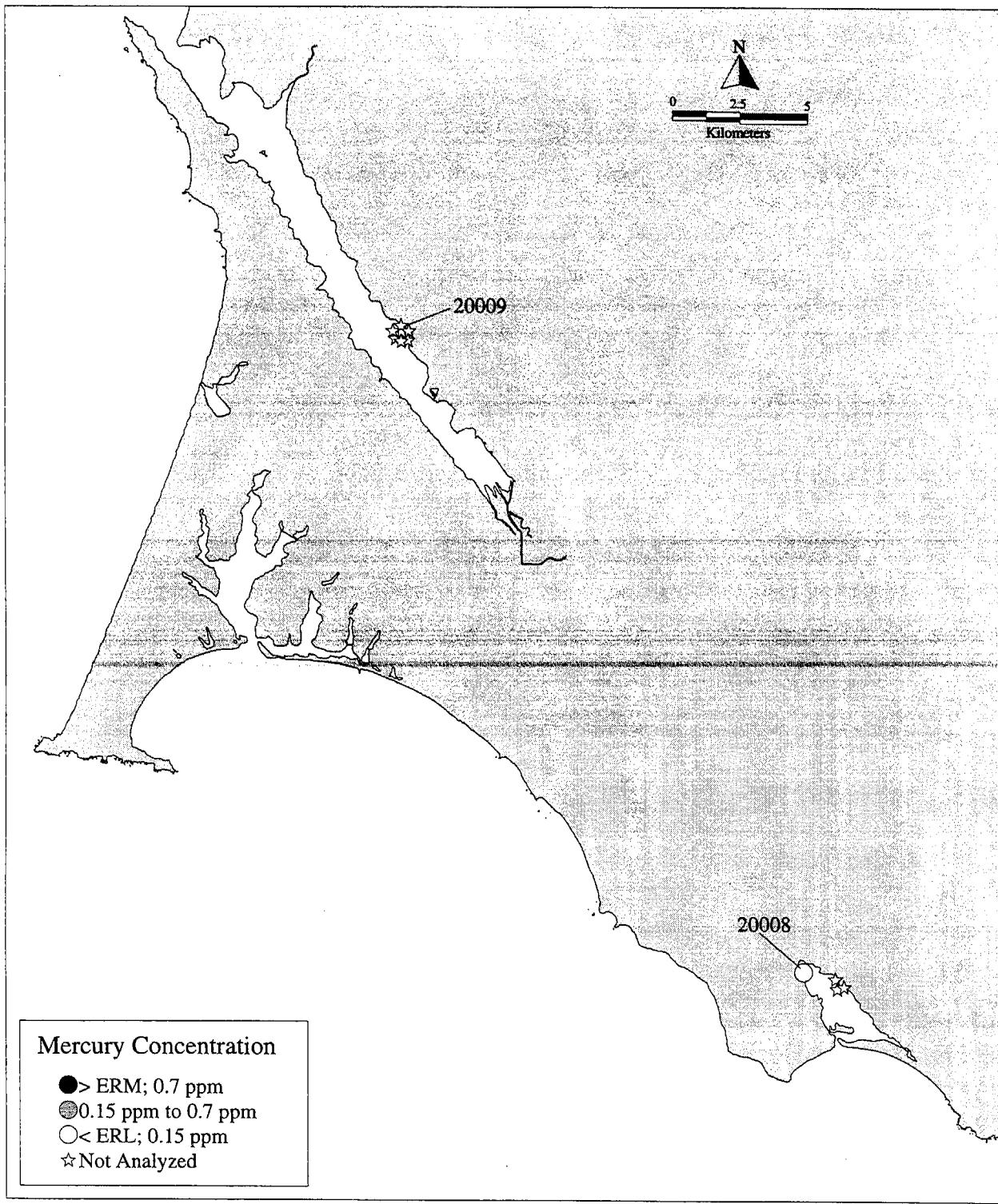


Figure 11g. Mercury Concentrations at Stations in Tomales Bay and Bolinas Lagoon.

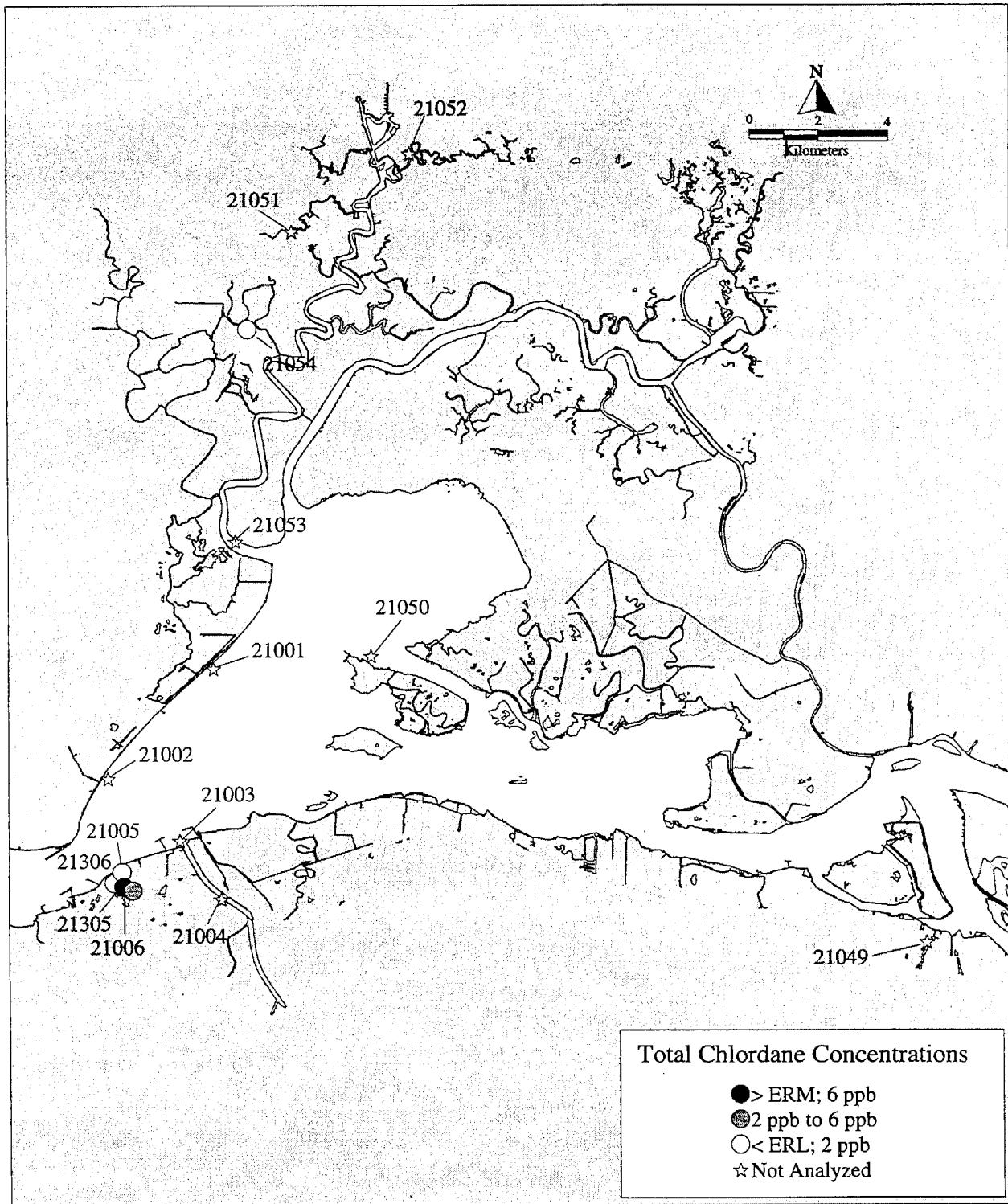


Figure 12a. Total Chlordane Concentrations at Stations in Suisun Bay.

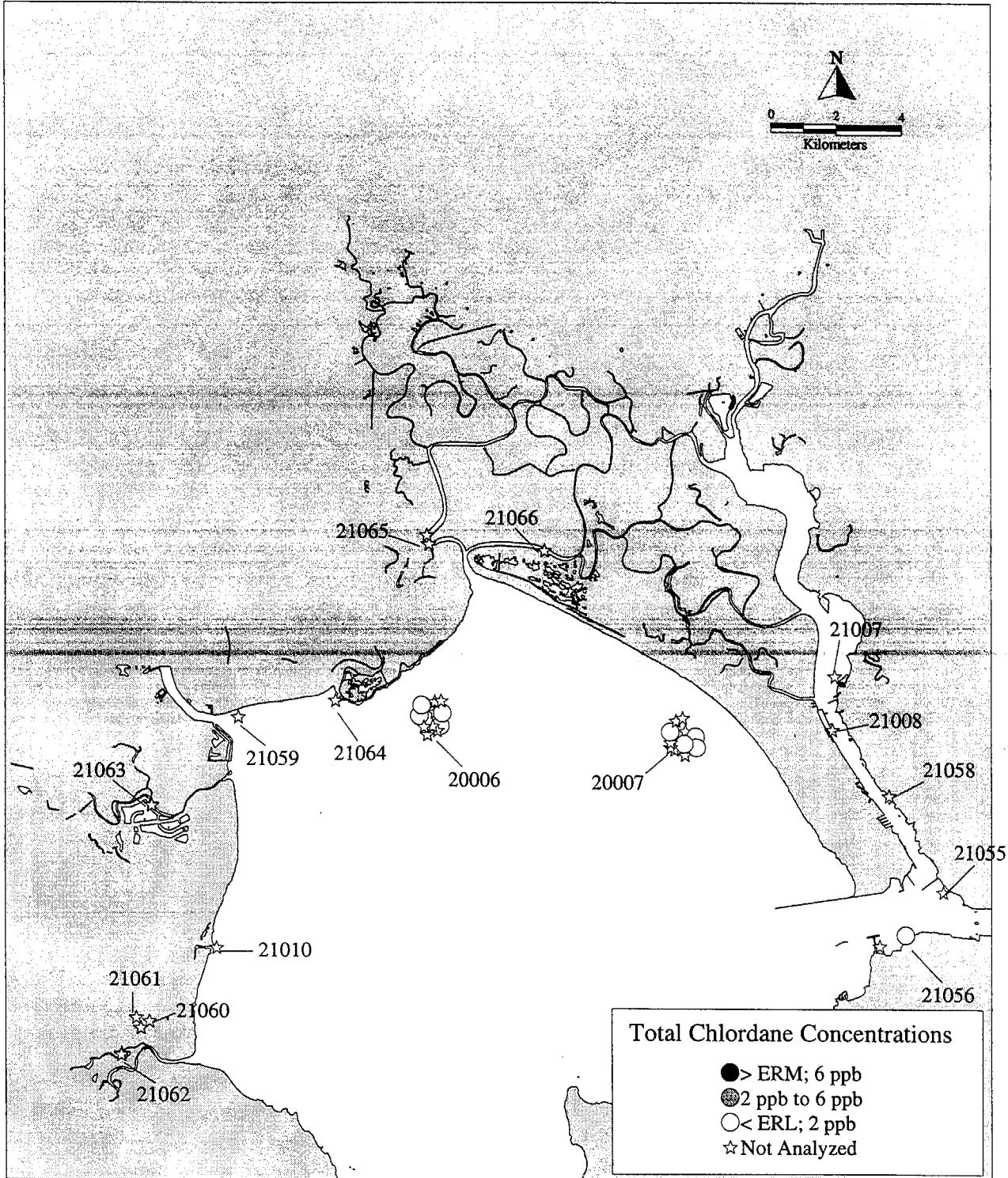


Figure 12b. Total Chlordane Concentrations at Stations in San Pablo Bay.

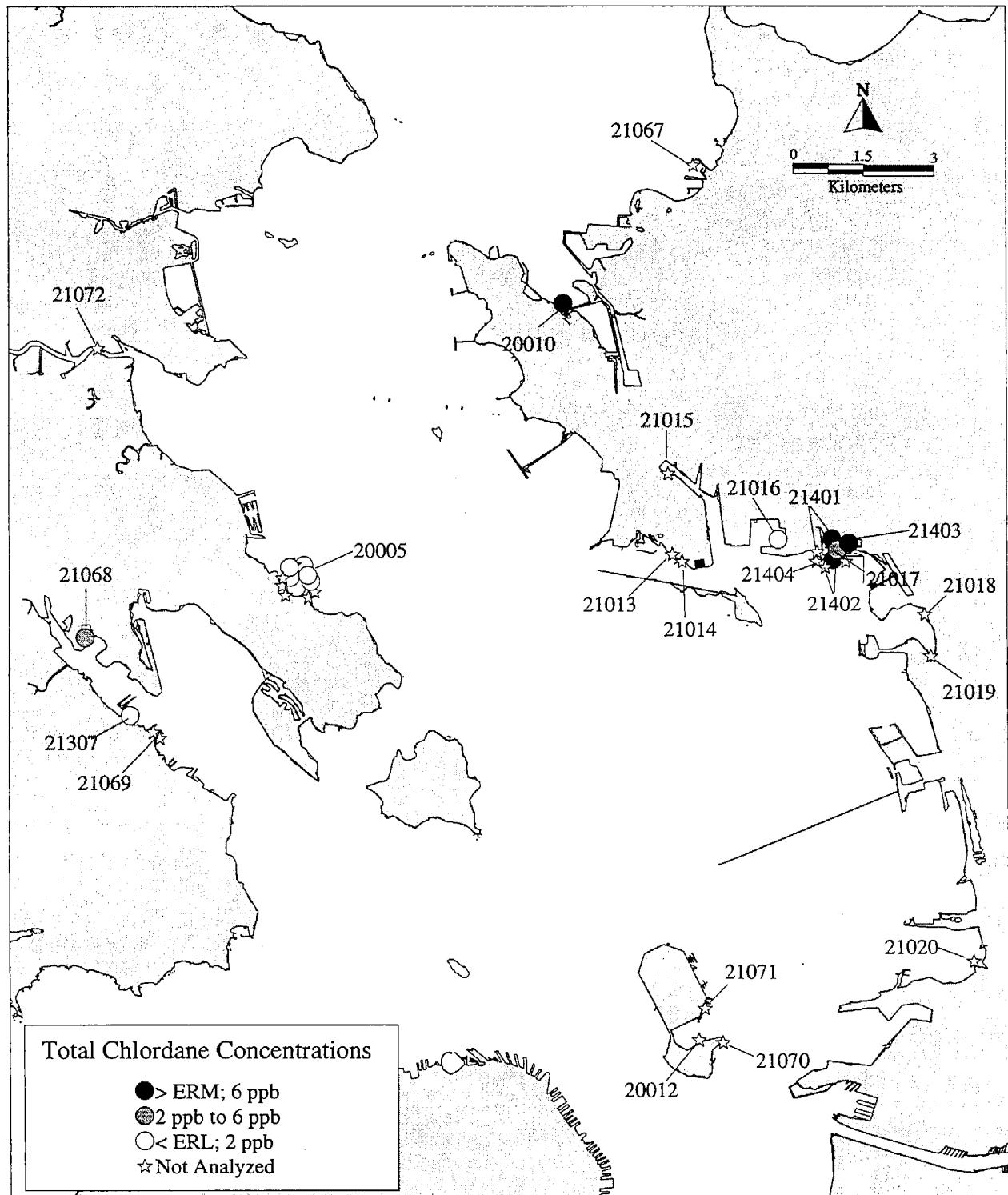


Figure 12c. Total Chlordane Concentrations at Stations in Central San Francisco Bay.

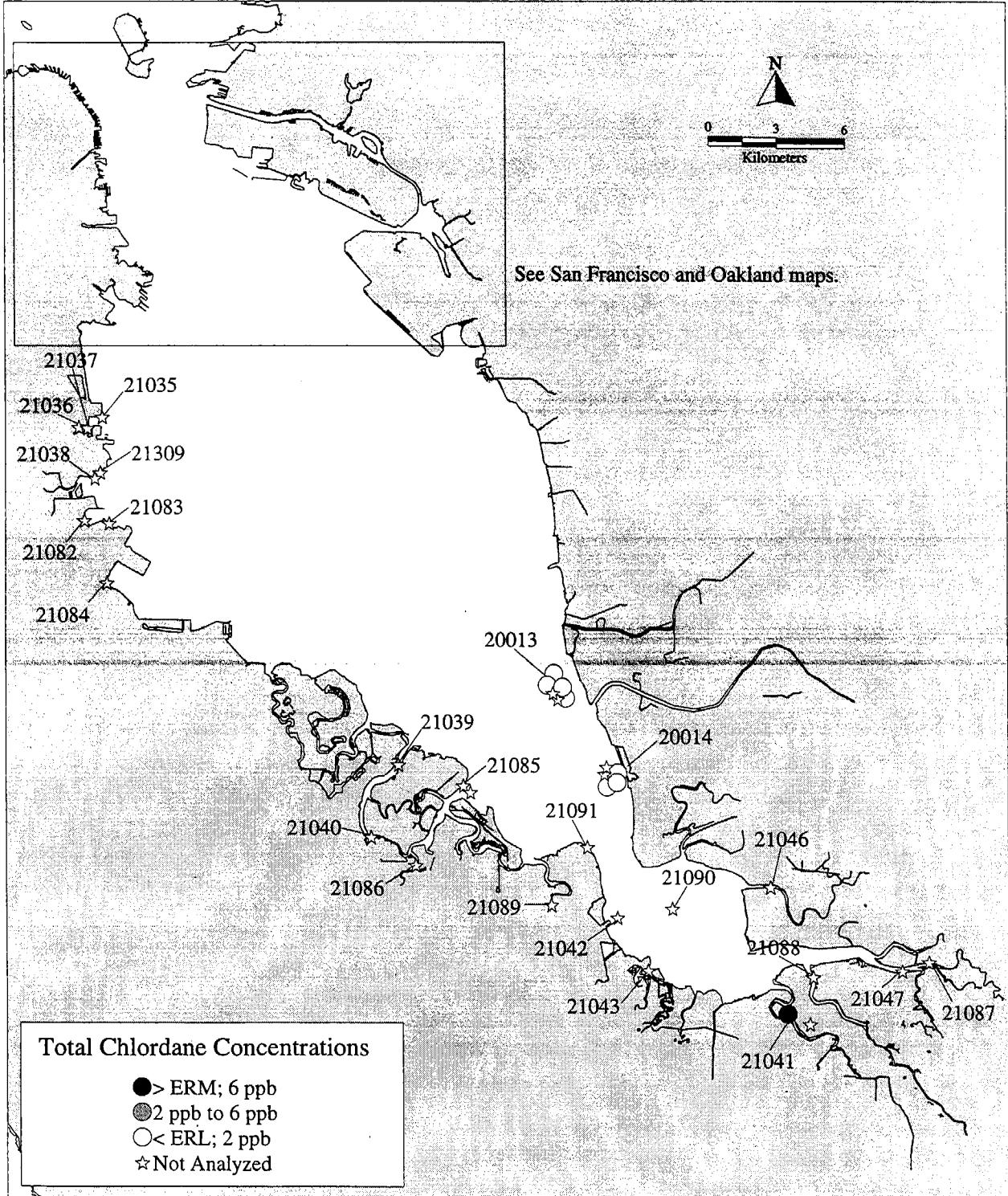


Figure 12d. Total Chlordane Concentrations at Stations in South San Francisco Bay.

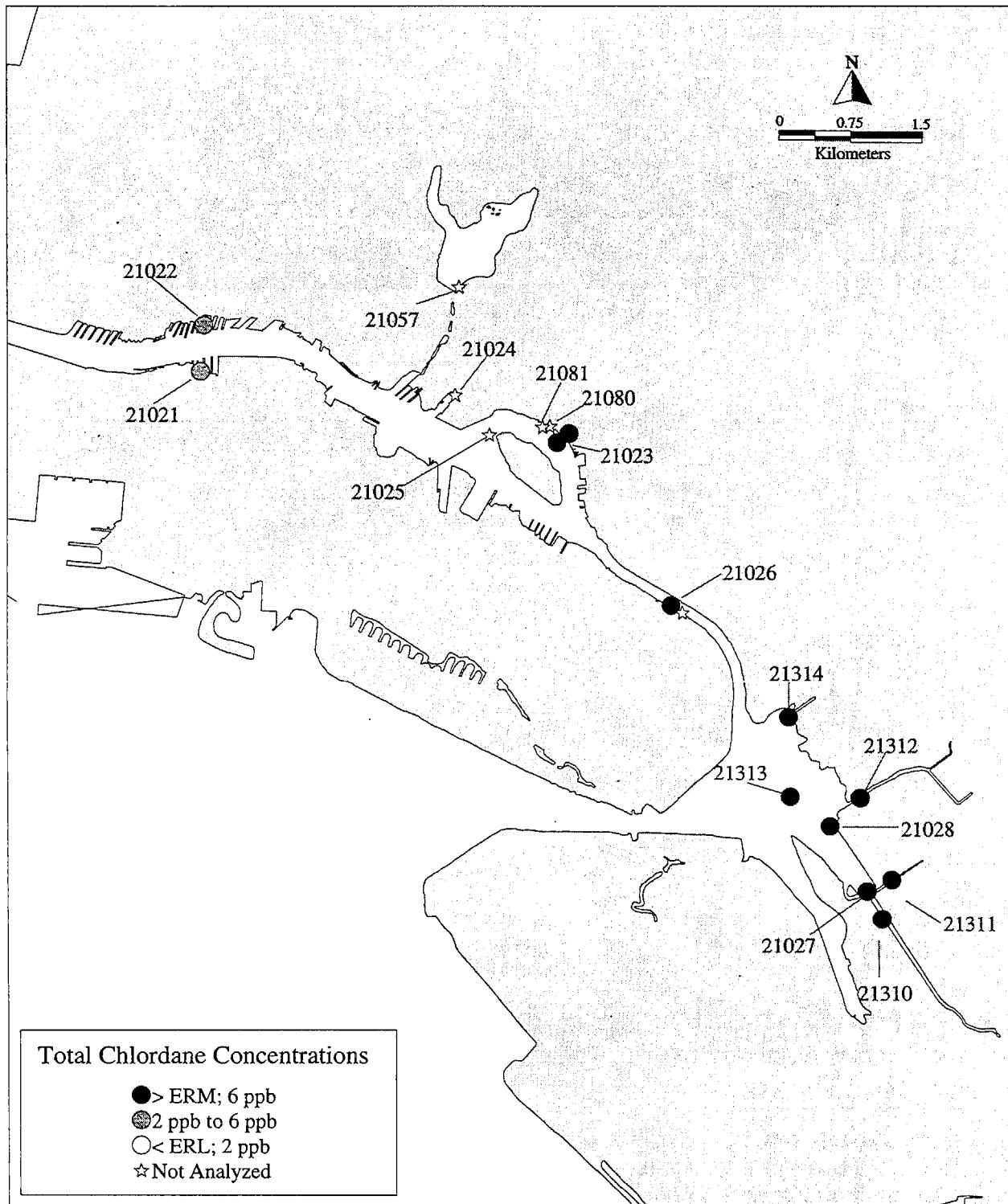


Figure 12e. Total Chlordane Concentrations at Stations in Oakland.

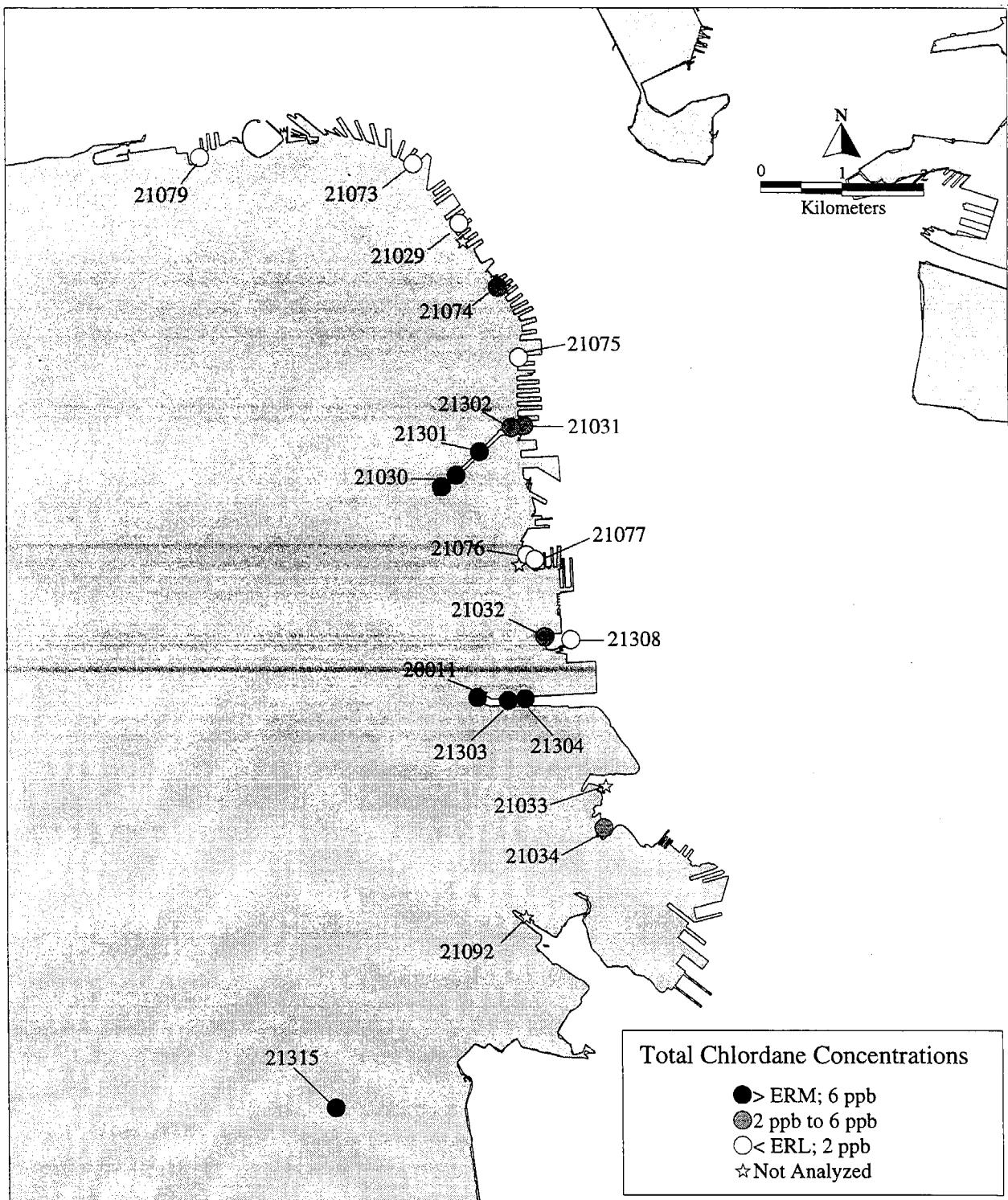


Figure 12f. Total Chlordane Concentrations at Stations in San Francisco.

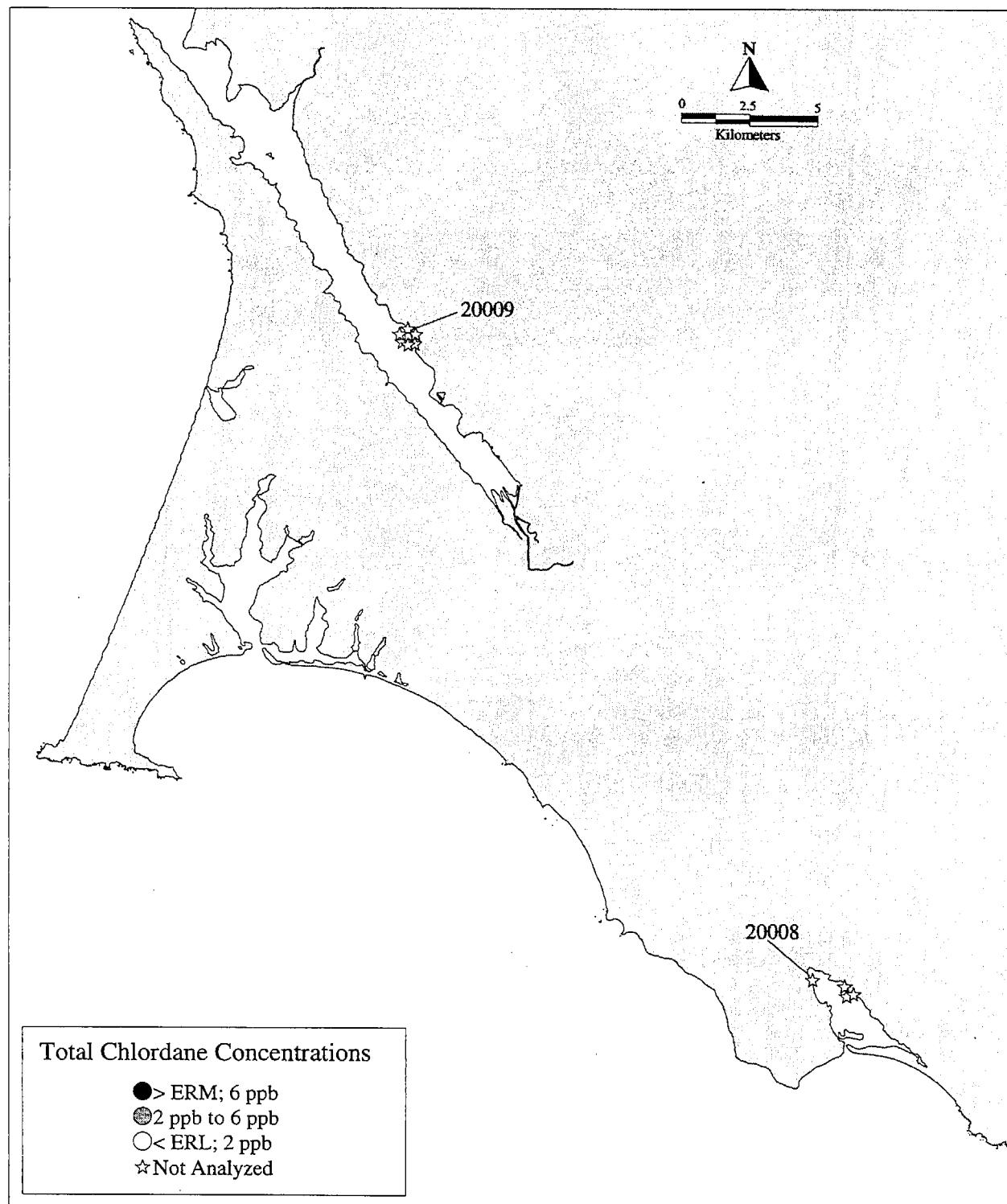


Figure 12g. Total Chlordane Concentrations at Stations in Tomales Bay and Bolinas Lagoon.

Table 13. Toxicity Screening, Solid-Phase Amphipod Tests. *Eohaustorius* amphipods were tested at all sites except San Bruno Channel #2 and PG&E Levinson, which used *Hyalella*. Un-ionized ammonia and hydrogen sulfide values are in mg/L. Arrows ^ indicate NH₃, H₂S or both above threshold concentrations. T and NT indicate significant toxicity (T) based on t-tests and 90th percentile MSD criteria. Values in parentheses near reference envelope tolerance limit are survival as a percent of lab controls. Controls for all tests ranged from 90% to 100% survival.

Station	Station Number	Sample Number	Amphipod Survival %	T/ NT	NH ₃	H ₂ S	^
Stege Marsh #1	21401.0	1795	0	T 0.001	nd		
Stege Marsh #2	21402.0	1796	0	T 0.001	0.0544		
Stege Marsh #3	21403.0	1797	0	T 0.107	nd		
Peyton Slough-Upper-Site 2	21006.0	1483	1	T 0.010	0.0450		
Mission Creek- Site 1	21030.0	1507	5	T 0.232	0.1123		
Pacific Drydock Yard 1	21023.0	1500	14	T 0.131	0.1347	^	
Peyton Slough- End Gradient	21306.0	1740	14	T 0.049	0.1420	^	
Oakland-Fruitvale	21026.0	1503	16	T 4.353	0.3030	^	
San Leandro Bay-Site 1	21027.0	1504	26	T 0.010	0.0220		
Tomales Bay-Marconi Cove-Rep 1	20009.0	1231	32	T 0.010	0.0046		
Castro Cove	20010.0	1410	33	T 0.009	0.0150		
San Leandro Bay-Site 3	21310.0	1755	40	T 0.032	0.0199		
Islais Creek- End Gradient	21304.0	1737	49	T 0.261	0.0606		
Tomales Bay-Marconi Cove-Rep 2	20009.0	1232	53	T 0.006	0.0085		
Tomales Bay-Marconi Cove-Rep 2	20009.0	1408	54	T 0.016	0.0260		
Carlson Creek	21404.0	1798	54	T 0.052	nd		
Islais Creek	20011.0	1411	57	T 0.330	0.9700	^	
Mission Creek- Mid Gradient	21301.0	1733	58	T 0.086	0.0959		
Peyton Slough- Mid Gradient	21305.0	1739	59	T 0.990	0.0459	^	
Waldo Point	21307.0	1746	59	T 0.031	0.0524		
Oakland Inner Hbr.-Schnitzer	21022.0	1499	60	T 0.016	0.0190		
Mayfield Slough-Near Sand Pt.	21043.0	1520	60	T 0.007	0.0114		
San Leandro Bay-Site 4	21311.0	1756	65 (66)	T 0.047	0.0569		
Reference Envelope Tolerance Limit For <i>Eohaustorius</i> = 69.5% of Control Survival (P = 10, α = 0.05)							
Tomales Bay-Marconi Cove-Rep 3	20009.0	1233	65 (70)	NT 0.044	0.0080		
Tomales Bay-Marconi Cove-Rep 2	20009.0	1470	67 (73)	NT 0.005	nd		
San Bruno Channel #2	21309.0	1752	67 (75)	NT 0.584	0.0052		
Alviso Slough	21088.0	1570	70	T 0.014	0.0008		
Alviso Slough	21088.0	1620	na	na	na		
San Leandro Bay-Site 6	21313.0	1758	70	T 0.021	0.0477		
Vallejo-Mare Is-Ship Anchorage	21008.0	1485	71	T 0.007	0.0079		
Santa Fe Channel- End	21015.0	1492	71	T 0.006	0.0749		
North Government Island	21025.0	1502	71	T 0.007	0.0093		
Oakland Inner Hbr.-Todd Shipyd	21021.0	1498	72	T 0.013	0.0111		
Steinberger Slough-Nr Freeway	21040.0	1517	72	T 0.018	0.0542		
Richmond Rod And Gun	21067.0	1547	72	NT 0.007	nd		
Redwood Creek - BA40	21085.0	1567	72	T 0.010	nd		
Redwood Creek BA40	21085.0	1621	na	na	na		
North Reserve Fleet-Suisun	21001.0	1478	73	T 0.014	0.0009		
San Leandro Bay -Site 2	21028.0	1505	73	NT 0.007	0.0081		

Table 13 (Continued). Toxicity Screening, Amphipods.

Station	Station Number	Sample Number	Amphipod Survival %	T/ NT	NH3	H2S	^
Bolinas Lagoon	20008.0	1576	74	NT	0.004	nd	
Vallejo-Mare Island-North Side	21007.0	1484	74	NT	0.004	0.0041	
Steinberger Slough- Nr Mouth	21039.0	1516	74	NT	0.007	0.0060	
Bolinas-Audubon Cyn.-Rep 3	20008.0	1230	75	NT	0.040	0.0199	
San Leandro Bay-Site 5	21312.0	1757	76	NT	0.030	0.0338	
Sierra Point	21035.0	1512	77	NT	0.007	0.0093	
Lake Merrit - MW #307.5	21057.0	1537	77	NT	0.033	nd	
Tomales Bay-Marconi Cove-Rep 1	20009.0	1407	78	NT	0.009	0.0110	
Mayfield Slough-Nr Cooley Ldng	21042.0	1519	78	NT	0.023	0.0034	
Gashouse Cove - Laguna St. CSO	21079.0	1561	78	NT	0.009	0.0034	
Point Portrero- Site 2	21014.0	1491	79	NT	0.006	0.0244	
Corte Madera Marsh - MC51	21072.0	1554	79	NT	0.014	nd	
Pacific Drydock - Ppd #3	21081.0	1563	79	NT	0.007	nd	
Coyote Creek - CX	21087.0	1569	79	NT	nd	nd	
South Bay Basin - BA20	21090.0	1572	79	NT	0.005	nd	
Treasure Island-Clipper Cove	20012.0	1471	80	NT	0.009	nd	
South India Basin-Site 2	21034.0	1511	80	NT	0.012	0.0180	
Gallinas Creek- MD20	21062.0	1542	80	NT	0.005	nd	
Gailinas Creek-MD20	21062.0	1613	na	na	na	na	
Sansome Street CSO - Pier 31	21073.0	1555	80	NT	0.015	0.0047	
Brannan Street CSO - Pier 32	21075.0	1557	80	NT	0.015	0.0036	
Mission Creek- End Gradient	21302.0	1734	80	NT	0.021	0.1018	
Cerrito Creek Mouth	21018.0	1495	81	NT	0.059	0.0242	
Islais Creek- Mid Gradient	21303.0	1736	81	NT	0.027	0.0608	
Warm Water Cove #2	21308.0	1747	81	NT	nd	0.1148	^
Treasure Island - Clipper Cove	21071.0	1553	82	NT	0.011	0.0050	
Howard Street CSO	21074.0	1556	82	NT	nd	nd	
S.F. Airport - South	21084.0	1566	82	NT	0.007	nd	
Bolinas-Audubon Cyn.-Rep 1	20008.0	1228	83	NT	0.009	0.0090	
Richmond Inner Hbr.-Hoffman Mr	21017.0	1494	83	NT	0.044	0.0116	
San Francisco- Pier 7	21029.0	1506	83	NT	0.011	0.0074	
Mission Creek- Site 2	21031.0	1508	83	NT	0.008	0.0562	
Mowry Slough	21046.0	1523	83	NT	0.006	0.0071	
Tolay Creek Mouth- MD31	21064.0	1544	83	NT	0.006	nd	
Oyster Point (East)-Site 2	21037.0	1514	84	NT	0.006	0.0130	
San Bruno Channel	21038.0	1515	84	NT	0.010	0.0126	
Dumbarton Bridge - BA30	21091.0	1573	84	NT	0.003	nd	
Tomales Bay-Marconi Cove-Rep 3	20009.0	1409	85	NT	0.009	0.0240	
Oyster Point (West)-Site 1	21036.0	1513	85	NT	0.005	0.0249	
Guadalupe Slough	21041.0	1518	85	NT	0.052	0.0842	
Grizzly Bay- Rmp BF20	21050.0	1530	85	NT	0.003	nd	
South Basin - Yosemite Crk CSO	21092.0	1577	85	NT	0.002	nd	
Pg&E/Levinson	21315.0	1760	85	NT	0.074	0.0095	
Point Portrero- Site 1	21013.0	1490	86	NT	0.029	0.0058	

Table 13 (Continued). Toxicity Screening, Amphipods.

Station	Station Number	Sample Number	Amphipod Survival %	T/ NT	NH3	H2S	^
Pacific Drydock Yard 2	21024.0	1501	86	NT	0.013	0.0070	
North India Basin-Site 1	21033.0	1510	86	NT	0.023	0.0019	
Dow Chemical- Kirker Creek	21049.0	1529	86	NT	0.002	nd	
Hill Slough- MF21	21052.0	1532	86	NT	0.003	nd	
Yerba Buena Island - Naval Stn	21070.0	1550	86	NT	0.022	nd	
Redwood Creek - West	21086.0	1568	86	NT	0.005	nd	
Peyton Slough-Mouth-Site 1	21005.0	1482	87	NT	0.005	0.5190	^
Cordornices Creek Mouth	21019.0	1496	87	NT	0.082	0.0138	
Coyote Slough-@Fixed R/R Bridg	21047.0	1524	87	NT	0.004	0.0030	
Semple Point-M.W. Va-7	21055.0	1535	87	NT	0.004	nd	
Central Basin - Outer	21077.0	1559	87	NT	0.014	0.0011	
S.F. Airport - Seaplane Harbor	21082.0	1564	87	NT	nd	nd	
Pacheco Cr-Above Bridge-Site 2	21004.0	1481	88	NT	0.009	0.0084	
San Pablo Bay- Hamilton	21010.0	1487	88	NT	0.004	0.0110	
Richmond Harbor	21016.0	1493	88	NT	0.016	0.0279	
Sonoma Creek- MD33	21065.0	1545	88	NT	0.010	nd	
Sonoma Creek-MD33	21065.0	1614	na	na	na	na	
Emeryville Marsh	21020.0	1497	89	NT	0.012	0.0040	
Boynton Slough- MF10	21051.0	1531	89	NT	0.003	nd	
Suisun Slough	21053.0	1533	89	NT	0.004	nd	
Selby - S2	21056.0	1536	89	NT	0.004	nd	
Napa Slough- MD32	21066.0	1546	89	NT	0.008	nd	
Central Basin - Inner	21076.0	1558	89	NT	0.009	0.0030	
Bolinas-Audubon Cyn.-Rep 2	20008.0	1229	90	NT	0.006	0.0119	
South Reserve Fleet-Suisun	21002.0	1479	90	NT	0.007	0.0055	
Chadborne Slough- MF13	21054.0	1534	91	NT	0.019	0.0030	
Chadborne Slough-MF13	21054.0	1615	na	na	na	na	
Pg&E-Vallejo-Coal Gas Plant	21058.0	1538	91	NT	0.004	nd	
Pacific Drydock - I-T4	21080.0	1562	91	NT	0.003	nd	
S.F. Airport - Central	21083.0	1565	91	NT	0.029	0.0030	
Novato Creek- MD21	21063.0	1543	92	NT	0.006	nd	
Novato Creek-MD21	21063.0	1618	na	na	na	na	
Silva Island Marsh- MC61	21068.0	1548	92	NT	0.068	nd	
Silva Island Marsh-MC61	21068.0	1616	na	na	na	na	
Pacheco Cr-Near Mouth-Site 1	21003.0	1480	93	NT	0.008	0.0078	
Petaluma River Mouth- BD20	21059.0	1539	93	NT	0.004	nd	
Miller Creek- MD10	21060.0	1540	93	NT	0.004	nd	
Miller Creek- MD11	21061.0	1541	93	NT	0.007	nd	
Miller Creek-MD11	21061.0	1617	na	na	na	na	
Potrero Point-Warm Water Cove	21032.0	1509	95	NT	0.017	0.0190	
Sausalito Harbor-Anderson B.Y.	21069.0	1549	96	NT	0.012	nd	
Sausalito Harbor-Anderson B.Y.	21069.0	1619	na	na	na	na	
Ravenswood Slough - West	21089.0	1571	96	NT	0.007	nd	
San Leandro Bay-Site 7	21314.0	1759	96	NT	0.028	0.0787	

Table 14. Toxicity Screening, Sea Urchin Larvac. Results of sediment-water interface (SWI) and porewater (PW) sea urchin embryo/larval toxicity tests. San Bruno Channel #2 and PG&E Levinson samples were tested with *Ceriodaphnia* (96-h survival). Sea urchin data are percent normal development. Un-ionized ammonia and hydrogen sulfide values are in mg/L. Arrows ^ indicate NH3, H2S, or both above possible effective concentrations. T and NT indicate significant toxicity (T) based on t-tests and 90th percentile MSD criteria. na = not applicable, nd = non-detect. For consistency, stations are ordered according to amphipod toxicity (Table 13.)

Station	Sample	Number	SWI	% Dev	T/N	^ NH3	H2S	100% PW	1/NT	^ NH3	H2S	50% PW	T/NT	25% PW	T/NT
Stege Marsh #1		21401.0	1795	0	T	0.000	nd	na	na	na	na	na	na	na	na
Stege Marsh #2		21402.0	1796	0	T	0.001	nd	na	na	na	na	na	na	na	na
Stege Marsh #3		21403.0	1797	19	T	0.012	nd	na	na	na	na	na	na	na	na
Peyton Slough-Upper-Site 2		21006.0	1483	na	na	na	0	T	^	0.011	0.024	0	T	1	T
Mission Creek- Site 1		21030.0	1507	na	na	na	0	T	^	1.201	0.920	0	T	0	T
Pacific Drydock Yard 1		21023.0	1500	na	na	na	97	NT	^	0.028	0.021	96	NT	94	NT
Peyton Slough- End Gradient		21306.0	1710	81	NT	0.017	0.0020	na	na	na	na	na	na	na	na
Oakland-Fruitvale		21026.0	1503	na	na	na	94	NT	0.010	nd	96	NT	82	NT	
San Leandro Bay-Site 1		21027.0	1504	na	na	na	93	NT	0.010	nd	93	NT	94	NT	
Tomales Bay-Marconi -Rep 1		20009.0	1231	84	NT	0.008	0.0043	97	NT	^	0.015	0.012	na	na	na
Castro Cove		20010.0	1410	97	NT	0.038	nd	96	NT	0.037	nd	na	na	na	na
San Leandro Bay-Site 3		21310.0	1755	94	NT	^	0.039	0.0147	na	na	na	na	na	na	na
Islais Creek- End Gradient		21304.0	1737	76	NT	^	0.312	0.0028	na	na	na	na	na	na	na
Tomales Bay-Marconi -Rep 2		20009.0	1232	na	na	na	92	NT	^	0.012	0.023	na	na	na	na
Tomales Bay-Marconi -Rep 2		20009.0	1408	na	na	na	64	T	0.027	nd	na	na	na	na	na
Carlson Creek		21404.0	1798	24	T	0.021	nd	na	na	na	na	na	na	na	na
Islais Creek		20011.0	1411	0	T	^	0.083	0.0080	0	T	^	0.478	0.062	na	na
Mission Creek- Mid Gradient		21301.0	1733	98	NT	0.023	0.0039	na	na	na	na	na	na	na	na
Peyton Slough- Mid Gradient		21305.0	1739	0	T	^	0.366	0.0044	na	na	na	na	na	na	na
Waldo Point		21307.0	1746	92	NT	0.060	0.0016	na	na	na	na	na	na	na	na
Oakland Inner Hbr.-Schnitzer		21022.0	1499	na	na	na	46	NT	0.064	nd	94	NT	93	NT	
Mayfield Slough- Sand Pt.		21043.0	1520	na	na	na	94	NT	0.011	nd	91	NT	92	NT	
Tomales Bay-Marconi -Rep 3		20009.0	1233	na	na	na	72	NT	0.007	0.004	na	na	na	na	na
San Leandro Bay-Site 4		21311.0	1756	19	T	0.047	0.0064	na	na	na	na	na	na	na	na
Tomales Bay-Marconi -Rep 2		20009.0	1470	96	NT	0.011	nd	91	NT	0.018	nd	na	na	na	na

Table 14 (Continued). Toxicity Screening, Sea Urchin Larvae.

Station	Sample Number	SWI	T/NT			NH3			H2S			100% PW			50% PW			25% PW			T/NT			
			% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev	% Dev
San Bruno Channel #2	21309.0	1752	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Alviso Slough	21088.0	1570	na	na	na	na	na	na	na	76	NT	^	0.083	nd	na	na	na	na	na	na	na	na	na	na
Alviso Slough	21088.0	1620	98	NT	0.004	nd	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
San Leandro Bay-Site 6	21313.0	1758	96	NT	^	0.033	0.0171	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Vallejo-Mare Is-Ship Anch	21008.0	1485	na	na	na	na	na	na	97	NT	^	0.030	0.008	98	NT	98	NT	98	NT	98	NT	98	NT	NT
Santa Fe Channel-End	21015.0	1492	na	na	na	na	na	na	81	NT	^	0.068	0.038	92	NT	96	NT	96	NT	96	NT	96	NT	NT
North Government Island	21025.0	1502	na	na	na	na	na	na	97	NT	0.021	nd	95	NT	95	NT	90	NT	90	NT	90	NT	90	NT
Oakland In. Ibr.-Todd Shipyd	21021.0	1498	na	na	na	na	na	na	48	T	0.065	nd	94	NT	92	NT	92	NT	92	NT	92	NT	92	NT
Steinberger Slough-Nr Hwy	21040.0	1517	na	na	na	na	na	na	85	NT	0.041	0.005	95	NT	93	NT	93	NT	93	NT	93	NT	93	NT
Richmond Rod And Gun	21067.0	1547	na	na	na	na	na	na	92	NT	0.028	nd	na	na	na	na	na	na	na	na	na	na	na	na
Redwood Creek - BA40	21085.0	1567	na	na	na	na	na	na	3	T	^	0.216	nd	na	na	na	na	na	na	na	na	na	na	na
Redwood Creek BA40	21085.0	1621	98	NT	0.002	nd	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
North Reserve Fleet-Suisun	21001.0	1478	na	na	na	na	na	na	89	NT	^	0.031	0.012	98	NT	98	NT	98	NT	98	NT	98	NT	NT
San Leandro Bay -Site 2	21028.0	1505	na	na	na	na	na	na	5	T	^	0.090	nd	95	NT	95	NT	94	NT	94	NT	94	NT	NT
Bolinas Lagoon	20008.0	1576	na	na	na	na	na	na	88	NT	0.024	nd	na	na	na	na	na	na	na	na	na	na	na	na
Vallejo-Mare Is.-North Side	21007.0	1484	na	na	na	na	na	na	98	NT	0.008	0.004	97	NT	97	NT	97	NT	97	NT	97	NT	97	NT
Steinberger Slough- Nr Mouth	21039.0	1516	na	na	na	na	na	na	91	NT	0.015	nd	90	NT	90	NT	94	NT	94	NT	94	NT	94	NT
Bolinas-Audubon Cyn.-Rep 3	20008.0	1230	na	na	na	na	na	na	95	NT	^	0.003	0.008	na	na	na	na	na	na	na	na	na	na	na
San Leandro Bay-Site 5	21312.0	1757	77	NT	0.060	0.0061	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Sierra Point	21035.0	1512	na	na	na	na	na	na	89	NT	0.009	nd	89	NT	93	NT	93	NT	93	NT	93	NT	93	NT
Lake Merrit - Mw #307.5	21057.0	1537	na	na	na	na	na	na	93	NT	0.052	nd	na	na	na	na	na	na	na	na	na	na	na	na
Tomales Bay-Marconi -Rep 1	20009.0	1407	77	NT	0.004	nd	82	NT	0.049	nd	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Mayfield Slough-Cooley Ldng	21042.0	1519	na	na	na	na	na	na	97	NT	0.031	nd	95	NT	95	NT	95	NT	95	NT	95	NT	95	NT
Gashouse Cove-Laguna St. CSD	21079.0	1561	na	na	na	na	na	na	12	T	^	0.279	nd	na	na	na	na	na	na	na	na	na	na	na
Point Piontero- Site 2	21014.0	1491	na	na	na	na	na	na	88	NT	^	0.045	0.021	92	NT	94	NT	94	NT	94	NT	94	NT	NT
Corte Madera Marsh - MC51	21072.0	1554	na	na	na	na	na	na	89	NT	0.025	nd	na	na	na	na	na	na	na	na	na	na	na	na
Pacific Drydock - Ppd #3	21081.0	1563	na	na	na	na	na	na	89	NT	0.021	nd	na	na	na	na	na	na	na	na	na	na	na	na
Coyote Creek - CX	21087.0	1569	na	na	na	na	na	na	87	NT	0.031	nd	na	na	na	na	na	na	na	na	na	na	na	na
South Bay Basin - BA20	21090.0	1572	na	na	na	na	na	na	49	T	0.004	nd	na	na	na	na	na	na	na	na	na	na	na	na

Table 14 (Continued). Toxicity Screening, Sea Urchin Larvae.

Station Number	Sample Number	SWI	% Dev	T/NI	^	NH3	H2S	100% PW	1/NI	^	NH3	H2S	50% PW	T/NI	25% PW	% Dev
Treasure Island-Clipper Cove	20012.0	1471	95	NT		0.012	nd	94	NT		0.014	nd	na	na	na	na
South India Basin-Site 2	21034.0	1511	na	na	na	na	na	22	T		0.054	nd	94	NT	78	NT
Gallinas Creek- MD20	21062.0	1542	na	na	na	na	na	0	T		0.014	nd	na	na	na	na
Gallinas Creek-MD20	21062.0	1613	81	NT		nd	nd	na	na		na	na	na	na	na	na
Sansome Street CSO - Pier 31	21073.0	1555	na	na	na	na	na	8	T	^	0.300	nd	na	na	na	na
Braunton Street CSO - Pier 32	21075.0	1557	na	na	na	na	na	59	T		0.054	nd	na	na	na	na
Mission Creek- End Gradient	21302.0	1734	94	NT		0.026	0.0005	na	na		0.022	0.010	98	NT	98	NT
Cerrito Creek Mouth	21018.0	1495	na	na	na	na	na	97	NT	^	0.022	0.010	98	NT	98	NT
Islais Creek- Mid Gradient	21303.0	1736	45	T	^	0.105	0.0021	na	na		na	na	na	na	na	na
Warm Water Cove #2	21308.0	1747	90	NT		0.047	0.0016	na	na		na	na	na	na	na	na
Treasure Island - Clipper Cove	21071.0	1553	na	na	na	na	na	26	T	^	0.088	nd	na	na	na	na
Howard Street CSO	21074.0	1556	na	na	na	na	na	33	T		0.016	nd	na	na	na	na
S.F. Airport - South	21084.0	1566	na	na	na	na	na	80	NT		0.056	nd	na	na	na	na
Bolinas-Audubon Cyn.-Rep 1	20008.0	1228	95	NT		0.004	0.0024	95	NT		0.002	0.007	na	na	na	na
Richmond In Hbr-Hoffman mr	21017.0	1494	na	na	na	na	na	0	T	^	0.062	0.014	0	T	6	T
San Francisco- Pier 7	21029.0	1506	na	na	na	na	na	33	T	^	0.124	0.790	88	NT	97	NT
Mission Creek- Site 2	21031.0	1508	na	na	na	na	na	57	T	^	0.088	0.015	94	NT	96	NT
Mowry Slough	21046.0	1523	na	na	na	na	na	97	NT		0.019	nd	96	NT	94	NT
Tolay Creek Mouth- MD31	21064.0	1544	na	na	na	na	na	94	NT		0.017	nd	na	na	na	na
Oyster Point (East)-Site 2	21037.0	1514	na	na	na	na	na	91	NT		0.024	0.004	89	NT	94	NT
San Bruno Channel	21038.0	1515	na	na	na	na	na	93	NT		0.013	nd	91	NT	89	NT
Dumbarton Bridge - BA30	21091.0	1573	na	na	na	na	na	86	NT		0.004	nd	na	na	na	na
Tomales Bay-Marconi -Rep 3	20009.0	1409	na	na	na	na	na	71	T		0.029	nd	na	na	na	na
Oyster Point (West)-Site 1	21036.0	1513	na	na	na	na	na	67	NT		0.028	nd	69	NT	87	NT
Guadalupe Slough	21041.0	1518	na	na	na	na	na	0	T	^	0.034	0.040	30	T	85	NT
Grizzly Bay- Rmp BL20	21050.0	1530	na	na	na	na	na	95	NT		0.009	nd	na	na	na	na
South Basin-Yosemite Cr. C'SO	21092.0	1577	na	na	na	na	na	82	NT		0.007	nd	na	na	na	na
Pg&E/Levinson	21315.0	1760	na	na	na	na	0.0027	na	na		na	na	na	na	na	na
Point Portero- Site 1	21013.0	1490	na	na	na	na	na	80	NT		0.062	0.007	96	NT	97	NT

Table 14 (Continued). Toxicity Screening, Sea Urchin Larvae.

Station Number	Station Sample Number	SWI % Dev	T/NT			NH3			H2S			50% PW			T/NT			25% PW		
			T/NT	NH3	H2S	T/NT	NH3	H2S	T/NT	NH3	H2S	T/NT	NH3	H2S	T/NT	NH3	H2S	T/NT	NH3	H2S
Pacific Drydock Yard 2	21024.0	1501	na	na	na	na	na	na	94	NT	0.029	nd	90	NT	92	NT	94	NT	94	NT
North India Basin-Site 1	21033.0	1510	na	na	na	na	na	na	95	NT	0.013	nd	96	NT	96	NT	94	NT	94	NT
Dow Chemical- Kirker Creek	21049.0	1529	na	na	na	na	na	na	83	NT	0.007	nd	na	na	na	na	na	na	na	na
Hill Slough- MI:21	21052.0	1532	na	na	na	na	na	na	96	NT	0.012	nd	na	na	na	na	na	na	na	na
Yerba Buena Is. - Naval Sln	21070.0	1550	na	na	na	na	na	na	92	NT	0.048	nd	na	na	na	na	na	na	na	na
Redwood Creek - West	21086.0	1568	na	na	na	na	na	na	87	NT	0.028	nd	na	na	na	na	na	na	na	na
Peyton Slough-Mouth-Site 1	21005.0	1482	na	na	na	na	na	na	63	T	^	0.005	0.012	84	NT	89	NT	89	NT	89
Cordornices Creek Mouth	21019.0	1496	na	na	na	na	na	na	97	NT	^	0.031	0.028	98	NT	98	NT	98	NT	98
Coyote Slough-@Fixed R/R Br.	21047.0	1524	na	na	na	na	na	na	96	NT	0.015	nd	95	NT	91	NT	91	NT	91	NT
Semple Point-M. W. Va-7	21055.0	1535	na	na	na	na	na	na	93	NT	0.018	nd	na	na	na	na	na	na	na	na
Central Basin - Outer	21077.0	1559	na	na	na	na	na	na	10	T	^	0.226	nd	na	na	na	na	na	na	na
S.F. Airport - Seaplane Harbor	21082.0	1564	na	na	na	na	na	na	87	NT	0.040	nd	na	na	na	na	na	na	na	na
Pacheco Cr-above bridge-Site 2	21004.0	1481	na	na	na	na	na	na	97	NT	^	0.020	0.015	98	NT	98	NT	98	NT	98
San Pablo Bay- Hamilton	21010.0	1487	na	na	na	na	na	na	98	NT	^	0.007	0.008	96	NT	97	NT	97	NT	97
Richmond Harbor	21016.0	1493	na	na	na	na	na	na	22	T	^	0.121	0.004	98	NT	96	NT	96	NT	96
Sonoma Creek- MD33	21065.0	1545	na	na	na	na	na	na	0	T	^	0.146	nd	na	na	na	na	na	na	na
Sonoma Creek- MD33	21065.0	1614	98	NT	nd	na	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Emeryville Marsh	21020.0	1497	na	na	na	na	na	na	97	NT	0.016	nd	98	NT	97	NT	97	NT	97	NT
Boynton Slough- MF10	21051.0	1531	na	na	na	na	na	na	92	NT	0.011	nd	na	na	na	na	na	na	na	na
Suisun Slough	21053.0	1533	na	na	na	na	na	na	82	NT	0.021	nd	na	na	na	na	na	na	na	na
Selby - S2	21056.0	1536	na	na	na	na	na	na	2	T	0.022	nd	na	na	na	na	na	na	na	na
Napa Slough- MD32	21066.0	1546	na	na	na	na	na	na	90	NT	0.031	nd	na	na	na	na	na	na	na	na
Central Basin - Inner	21076.0	1558	na	na	na	na	na	na	58	T	^	0.095	nd	na	na	na	na	na	na	na
Bolinas-Audubon Cyn.-Rep 2	20008.0	1229	na	na	na	na	na	na	95	NT	^	0.004	0.011	na	na	na	na	na	na	na
South Reserve Fleet-Suisun	21002.0	1479	na	na	na	na	na	na	91	NT	^	0.008	0.011	95	NT	93	NT	93	NT	93
Chadbone Slough- MI:13	21054.0	1534	na	na	na	na	na	na	0	T	^	0.206	0.008	na	na	na	na	na	na	na
Chadbone Slough-MD13	21054.0	1615	47	T	0.018	rd	na	na	na	na	na	na	na	na	na	na	na	na	na	na
Pg&E-Vallejo-Coal Gas Plant	21058.0	1538	na	na	na	na	na	na	85	NT	0.026	nd	na	na	na	na	na	na	na	na
Pacific Drydock - T-4	21080.0	1562	na	na	na	na	na	na	83	NT	0.050	nd	na	na	na	na	na	na	na	na

Table 14 (Continued). Toxicity Screening, Sea Urchin Larvae.

Station	Sample Number	SWI	T/NT	^	NH3	H2S	100% PW	T/NT	^	NH3	H2S	50% PW	T/NT	^	25% PW	% Dev	17NT
S.F. Airport - Central	21083.0	1565	na	na	na	na	80	NT	0.057	nd	na	na	na	na	na	na	na
Novato Creek- MD21	21063.0	1543	na	na	na	na	1	T	0.032	nd	na	na	na	na	na	na	na
Novato Creek-MD21	21063.0	1618	98	NT	0.002	nd	na	na	na	na	na	na	na	na	na	na	na
Silva Island Marsh- MC61	21068.0	1548	na	na	na	na	0	T	^	0.165	nd	na	na	na	na	na	na
Silva Island Marsh-MC61	21068.0	1616	44	T	0.056	0.0011	na	na	na	na	na	na	na	na	na	na	na
Pacheco Cr-Near Mouth-Site 1	21003.0	1480	na	na	na	na	91	NT	0.017	0.005	94	NT	98	NT	98	NT	98
Petaluma River Mouth- BD20	21059.0	1539	na	na	na	na	93	NT	0.012	nd	na	na	na	na	na	na	na
Miller Creek- MD10	21060.0	1540	na	na	na	na	79	NT	0.017	nd	na	na	na	na	na	na	na
Miller Creek- MD11	21061.0	1541	na	na	na	na	0	T	^	0.091	nd	na	na	na	na	na	na
Miller Creek-MD11	21061.0	1617	89	NT	0.044	nd	na	na	na	na	na	na	na	na	na	na	na
Potrero Pt.-Warm Water Cove	21032.0	1509	na	na	na	na	70	NT	0.052	0.004	81	NT	87	NT	87	NT	87
Sausalito Hbr.-Anderson B.Y.	21069.0	1549	na	na	na	na	5	T	^	0.088	nd	na	na	na	na	na	na
Sausalito Hbr.-Anderson B.Y.	21069.0	1619	89	NT	0.046	nd	na	na	na	na	na	na	na	na	na	na	na
Ravenswood Slough - West	21089.0	1571	na	na	na	na	86	NT	0.052	nd	na	na	na	na	na	na	na
San Leandro Bay-Site 7	21314.0	1759	14	T	0.023	0.0006	na	na	na	na	na	na	na	na	na	na	na

Table 15a. Toxicity Confirmation. Toxicity data from stations that were resampled for confirmation of either toxicity or elevated chemistry measured during screening. Stations are sorted by amphipod toxicity, except that stations in close proximity are grouped together and sorted according to the most toxic station in the group, and these are indicated by parentheses. Fines are combined silts and clays; TOC is total organic carbon; SWI indicates sediment-water interface exposure system; PW is porewater, at 100%, 50% and 25% dilutions. Single arrow ^ indicate either ammonia or hydrogen sulfide above threshold concentrations, double arrows ^^ indicate both compounds above thresholds. Asterisks * indicate significant toxicity as compared to tolerance limits for amphipod tests and t-test/MSD for sea urchin tests (see Methods section).

Station	Sample Number	% Fines	% TOC	% Survival	NH3 H2S	SWI H2S	Sea Urchin % Normal Larval Development
Steige Marsh #1	21401.0	1795	92	2.10	0*	0*	na na
Steige Marsh #1	21401.0	1799	na	1*	na	na	na na
Steige Marsh #2	21402.0	1796	94	1.27	0*	0*	na na
Steige Marsh #2	21402.0	1800	na	0*	na	na	na na
(Carlson Creek)	21404.0	1798	93	1.53	54*	24*	na na
(Carlson Creek)	21404.0	1801	na	na	85	na	na na
Isla's Creek	20011.0	1411	88	4.32	57*	0*	na na
Isla's Creek	20011.0	1735	39	3.99	0*	0*	na na
(Isla's Creek- Mid Gradient)	21303.0	1736	100	2.68	81	45*	na na
(Isla's Creek- End Gradient)	21304.0	1737	100	2.99	49*	76	na na
Castro Cove	20010.0	1410	98	1.43	33*	97	96 na
Castro Cove	20010.0	1489	99	2.90	0*	na	0* ^
Pacific Drydock Yard 1	21023.0	1500	68	5.42	14*	na	97 ^
Pacific Drydock - Yard 1	21023.0	1753	71	6.27	0*	72	na na
Peyton Slough-Upper-Site 2	21006.0	1483	90	4.01	1*	na	0* ^
Peyton Slough-Upper-Site 2	21006.0	1738	43	1.38	69*	1*	na na
(Peyton Slough- Mid Gradient)	21305.0	1739	100	4.01	59*	0*	na na
(Peyton Slough- End Gradient)	21306.0	1740	100	1.82	14*	81	na na
(Peyton Slough-Mouth-Site 1)	21005.0	1482	64	1.50	87	na	63* ^
Mission Creek- Site 1	21030.0	1507	7	1.02	5*	na	84 na
Mission Creek- Site 1	21030.0	1732	26	2.78	19*	11*	0* ^
(Mission Creek- Mid Gradient)	21301.0	1733	100	2.71	58*	98	0* na
(Mission Creek- End Gradient)	21302.0	1734	100	1.52	80	94	na na
(Mission Creek- Site 2)	21031.0	1508	98	1.44	83	na	57* ^
Oakland-Fruitvale	21026.0	1503	31	3.21	16*	na	94 na
Oakland-Fruitvale	21026.0	1754	72	1.84	55*	96	96 na

Table 15a (Continued). Toxicity Confirmation. Toxicity data from stations that were resampled for confirmation of either toxicity or elevated chemistry measured during screening. Stations are sorted by amphipod toxicity, except that stations in close proximity are grouped together and sorted according to the most toxic station in the group, and these are indicated by parentheses. Fines are combined silts and clays; TOC is total organic carbon; SWI indicates sediment-water interface exposure system; PW is porewater, at 100%, 50% and 25% dilutions. Single arrow ^ indicate either ammonia or hydrogen sulfide above threshold concentrations, double arrows ^^^ indicate both compounds above thresholds. Asterisks* indicate significant toxicity as compared to tolerance limits for amphipod tests and t-test/MSD for sea urchin tests (see Methods section).

Station	Station Number	Sample Number	% Fines	% TOC	Amphipod % Survival		Sea Urchin % Normal Larval Development		
					NH3 H2S	SWI H2S	NH3 PW	H2S PW	50% PW
Central Basin - Inner	21076.0	1558	88	1.76	89	67*	58*	na	na
Central Basin - Inner	21076.0	1745	100	1.56	82	63	na	na	na
Howard Street CSO	21074.0	1556	71	1.06	86	na	33*	na	na
Howard Street CSO	21074.0	1744	77	0.83	89	89	na	na	na
Selby - S2	21056.0	1536	58	1.03	89	na	2*	na	na
Selby - S2	21056.0	1761	64	0.95	100	96	na	na	na
Warm Water Cove - Poltero Pt	21032.0	1509	78	1.36	95	na	70*	^	81
Warm Water Cove #2	21308.0	1747	100	1.42	81	81	90	na	87

Table 15b. Toxicity Confirmation, Additional Stations. The following data are from stations that during screening exhibited only porewater toxicity, often in association with elevated ammonia or hydrogen sulfide. These stations were resampled and tested with sediment-water interface exposures. Column headings and abbreviations are as for Table 15a.

Station	Station Number	Sample	% Fines	% TOC	Amphipod			Sea Urchin % Normal Larval Development		
					NH3	H2S	SWI	NH3	H2S	PW
Guadalupe Slough	21041.0	1518	76	2.24	85	64*	na	95	na	na
Guadalupe Slough	21041.0	1751	100	1.47	64*	na	na	33*	na	na
San Francisco- Pier 7	21029.0	1506	99	1.52	83	na	na	33*	88	97
San Francisco- Pier 7	21029.0	1742	100	1.21	79	87	na	na	na	na
Alviso Slough	21088.0	1570	97	1.56	70	na	na	76*	na	na
Alviso Slough	21088.0	1620	na	na	na	na	98	na	na	na
Chadborne Slough-MF13	21054.0	1534	93	2.50	91	na	na	0*	na	na
Chadborne Slough-MF13	21054.0	1615	na	2.50	na	47*	na	na	na	na
Gallinas Creek- MD20	21062.0	1542	100	2.13	80	na	na	0*	na	na
Gallinas Creek-MD20	21062.0	1613	na	na	na	81	na	na	na	na
Miller Creek- MD11	21061.0	1541	100	1.81	93	na	na	0*	na	na
Miller Creek-MD11	21061.0	1617	na	na	na	89	na	na	na	na
Novato Creek- MD21	21063.0	1543	100	1.52	92	na	na	1*	na	na
Novato Creek-MD21	21063.0	1618	na	na	na	98	na	na	na	na
Redwood Creek - BA40	21085.0	1567	95	1.52	72	na	na	3*	na	na
Redwood Creek - BA40	21085.0	1621	na	na	na	98	na	na	na	na
Sausalito Harbor-Anderson B.Y.	21069.0	1549	100	1.70	96	na	na	5*	na	na
Sausalito Harbor-Anderson B.Y.	21069.0	1619	na	na	na	89	na	na	na	na
Silva Island Marsh - MC61	21068.0	1548	53	2.68	92	na	na	0*	na	na
Silva Island Marsh - MC61	21068.0	1616	na	2.68	na	44*	na	na	na	na
Sonoma Creek - MD33	21065.0	1545	100	1.42	88	na	na	0*	na	na
Sonoma Creek - MD33	21065.0	1614	na	na	na	98	na	na	na	na

Table 16. Summary of Chemistry Data. Chemicals are listed when concentrations exceeded published sediment chemistry guideline values (ERMs) or, if no ERMs were available, ranked in the highest 10% of samples analyzed statewide in the BPTC Program. Single asterisks indicate chemicals with concentrations more than 5 times guideline values; double asterisks indicate concentrations more than 10 times guideline values. TOC is total organic carbon. Abbreviations of chemical names are explained in Appendix C.

Station Number	Sample Number	Station (Confirmation Stations)	Grain Size % Fines	TOC	Mean ERM Quotient	Chemicals Exceeding ERM Values	Chemicals with Concentrations in the Highest 10% Statewide
21401	1795	Stege Marsh #1	91.97	2.10	2.70	As*, Cu, Hg*, Zn*, chlordane, ppDDE, dieldrin, PCBs	alpha HCH**, beta HCH, lindane, delta HCH*, hexachlorobenzene, Se**
21402	1796	Stege Marsh #2	93.77	1.27	0.61	Cu, Hg, Zn, chlordane,	alpha HCH, lindane, delta HCH hexachlorobenzene, Se*
21403	1797	Stege Marsh #3	98.97	3.06	2.59	As, Cu, Hg, Ni, Zn, chlordane*, ppDDE, Dieldrin*, PCBs**	dacthal, endosulfan I endosulfan sulfate**, dichlorobenzophenone, heptachlor epoxide*, hexachlorobenzene, mirex**, oxadiazon, toxaphene*, Se
20011	1735	Islais Creek	38.70	3.99	1.18	chlordane*, dieldrin, PCBs*, hmw PAHs	endosulfan sulfate
21303	1736	Islais Creek- Mid Gradient	100.00	2.68	0.60	Hg, chlordane, ppDDE, PCBs	
21304	1737	Islais Creek- End Gradient	100.00	2.99	0.62	chlordane, PCBs, Hg, Ni, chlordane	
20010	1489	Castro Cove	98.97	2.90	2.25	dieldrin, benz(a)anthracene*, benz(a)pyrene**, dibenzo(a)anthracene**, chrysene, pyrene*, hmw PAHs**, PAHs*, Hg	Se

Table 16 (Continued). Summary of Chemistry Data.

Station Number	Sample Number	Station (Confirmation Stations, Continued)	Grain Size % Fines	TOC	Mean ERM Quotient	Chemicals Exceeding ERM Values	Chemicals with Concentrations in the Highest 10% Statewide
21023	1753	Pacific Drydock - Yard 1	71.07	6.27	3.94	Cu, Pb, Hg*, Zn, chlordane**, ppDDE, dieldrin, PCBs, acenaphthylene, anthracene, chrysene, benz(a)anthracene, benzo(a)pyrene, dibenz(a)anthracene, fluoranthene, fluorene, 2-methyl naphthalene, phenanthrene, pyrene, lmw PAHs*, hmw PAHs, Total PAHs	chlorpyrifos, mirex, TBT**
21023	1500	Pacific Drydock Yard 1	67.69	5.42	1.27	Hg, Ni, chlordane*, ppDDE, dieldrin, PCBs, dibenz(a)anthracene, pyrene, hmw PAHs	chlorpyrifos
21006	1483	Peyton Slough-Upper-Site 2	89.70	4.01	3.58	Cd, Cu**, Ni, Ag, Zn**, chlordane, ppDDE, PCBs, pyrene	hexachlorobenzene, Se
21006	1738	Peyton Slough-Upper-Site 2	43.36	1.38	2.35	Cd, Cu** Pb*, Ag, Zn**	
21305	1739	Peyton Slough- Mid Gradient	100.00	4.01	0.40	Cu, Zn	Se
21306	1740	Peyton Slough- End Gradient	100.00	1.82	0.30	Zn	

Table 16 (Continued). Summary of Chemistry Data.

Station Number	Sample Number	Station Confirmation Stations, Continued)	Grain Size % Fines	TOC	Mean ERM Quotient	Chemicals Exceeding ERM Values	Chemicals with Concentrations in the Highest 10% Statewide
21030	1507	Mission Creek- Site 1	7.22	1.02	0.51	Cr, Pb, Ni, chlordane	
21030	1732	Mission Creek- Site 1	26.44	2.78	3.93	Cr, Cu, Pb*, Hg**, Ag, Zn, chlordane** dieldrin PCBs, phenanthrene, hmw PAHs, hmw PAHs	chlorpyrifos, mirex
21301	1733	Mission Creek- Mid Gradient	100.00	2.71	1.00	chlordane*, PCBs, hmw PAHs	
21302	1734	Mission Creek- End Gradient	100.00	1.52	0.28	none	
21031	1508	Mission Creek- Site 2	97.72	1.44	0.22	Ni	
21026	1503	Oakland-Fruitvale	30.88	3.21	0.54	Ni, chlordane, PCBs	
21027	1504	San Leandro Bay-Site 1	90.31	6.02	1.52	Pb, Hg, Ni, Zn, chlordane**, ppDDE, dieldrin, PCBs, hmw PAH dibenzo(a)anthracene,	chlorpyrifos, heptachlor, Se
21028	1505	San Leandro Bay-Site 2	97.43	3.62	0.77	Ni, Zn, chlordane, PCBs, hexachlorobenzene**	
21310	1755	San Leandro Bay-Site 3	80.68	3.82	0.90	chlordane* dieldrin PCBs	hexachlorobenzene
21311	1756	San Leandro Bay-Site 4	87.99	6.04	2.01	Hg, Zn, chlordane**, dieldrin, PCBs, hmw PAH benzo(a)pyrene, benzo(a)anthracene	mirex
21312	1757	San Leandro Bay-Site 5	85.37	2.14	0.67	chlordane*	

Table 16 (Continued). Summary of Chemistry Data.

Station Number	Sample Number	Station (Confirmation Sites, Continued)	Grain Size % Fines	TOC	Mean ERM Quotient	Chemicals Exceeding ERM Values	Chemicals with Concentrations in the Highest 10% Statewide
21313	1758	San Leandro Bay-Site 6	93.42	1.59	0.44	Hg, chlordane	hexachlorobenzene
21314	1759	San Leandro Bay-Site 7	72.86	2.76	1.33	Zn, chlordane**, ppDDE dieldrin, PCBs	
21041	1518	Guadalupe Slough	76.14	2.24	0.32	Ni, chlordane	
21076	1558	Central Basin - Inner	87.66	1.76	0.50	Hg, Ni, benzo(a)pyrene, dibenzo(a,h)anthracene, fluoranthene, pyrene, lmw PAHs, hmw PAHs	
21029	1506	San Francisco- Pier 7	98.83	1.52	0.21	Hg, Ni	
21074	1556	Howard Street CSO	71.10	1.06	0.35	Ni, HMW PAHs	
21056	1536	Selby - S2	57.91	1.03	0.23	Ni	
21032	1509	Warm Water Cove -Potrero Pt.	78.05	1.36	0.68	Ni, acenapthene, benz(a)anthracene, benzo(a)pyrene, dibenzo(a,h)anthracene, fluoranthene, fluorene, phenanthrene, pyrene, anthracene, lmw PAHs, hmw PAHs, Total PAHs	
21308	1747	Warm Water Cove #2	100.00	1.42	na	none	

Table 16 (Continued). Summary of Chemistry Data.

Station Number	Sample Number	Stations Sampled For Porewater/SWI Comparisons	Grain Size % Fines	TOC	Mean ERM Quotient	Chemicals Exceeding ERM Values	Chemicals with Concentrations in the Highest 10% Statewide
21054	1615	Chadborne Slough-MF13	-9.00	2.50	0.14	Ni	
21068	1616	Silva Island Marsh - MC61	-9.00	2.68	0.17	Ni	
Station Number	Sample Number	Station	Grain Size % Fines	TOC	Mean ERM Quotient	Chemicals Exceeding ERM Values	Chemicals with Concentrations in the Highest 10% Statewide
21075	1557	Brannan Street CSO - Pier 32	89.16	1.44	0.23	Ni	
21077	1559	Central Basin - Outer	94.88	1.75	0.22	Ni	
21079	1561	Gashouse Cove - Laguna St. CSO	97.62	1.72	0.23	Ni	
21022	1499	Oakland Inner Hbr.-Schnitzer	90.55	1.77	0.36	Ni, benzo(a)pyrene, hmw PAHs	
21021	1498	Oakland Inner Hbr.-Todd Shipyd	99.20	1.98	0.39	nickel, benzo(a)pyrene, hmw PAHs	
21315	1760	Pg&E/Levinson	99.98	4.32	na	chlordane	
21016	1493	Richmond Harbor	99.46	1.61	0.23	Ni	
21017	1494	Richmond Inner Hbr.-Hoffman Mr	45.39	0.50	0.25	none	
21073	1555	Sansome Street Cso - Pier 31	84.13	1.59	0.19	Ni	
21034	1511	South India Basin-Site 2	98.34	1.84	0.45	Hg, Ni, PCBs	
21307	1746	Waldo Point	100.00	2.07	na	dieldrin, hmw PAHs	

Table 17. Sediment PCB and Mercury Concentrations and ERM Quotients. Stations are ranked by total PCB concentration.

Station Number	Sample Number	Station	Total PCBs		Mercury		All Chemicals Mean ERMQ
			ppb dry	ERM Q	ppb dry	ERM Q	
21013.0	1490	Point Portrero- Site 1	19901	110.6	4.63	6.5	na
21403.0	1797	Stege Marsh #3	2546	14.1	2.15	3.0	2.59
21092.0	1577	South Basin - Yosemite Crk CSO	1804	10.0	0.82	1.2	na
20011.0	1735	Islais Creek	971	5.4	0.53	0.7	1.18
21023.0	1753	Pacific Drydock - Yard 1	865	4.8	5.93	8.4	3.94
21401.0	1795	Stege Marsh #1	758	4.2	5.54	7.8	2.70
21311.0	1756	San Leandro Bay-Site 4	740	4.1	0.76	1.1	2.01
21030.0	1732	Mission Creek- Site 1	737	4.1	7.68	10.8	3.93
21024.0	1501	Pacific Drydock Yard 2	730	4.1	1.28	1.8	na
21023.0	1500	Pacific Drydock Yard 1	642	3.6	0.85	1.2	1.27
21027.0	1504	San Leandro Bay-Site 1	526	2.9	0.87	1.2	1.52
21314.0	1759	San Leandro Bay-Site 7	497	2.8	0.59	0.8	1.33
21080.0	1562	Pacific Drydock - I-T4	406	2.3	1.75	2.5	na
21301.0	1733	Mission Creek- Mid Gradient	404	2.2	0.41	0.6	1.00
21081.0	1563	Pacific Drydock - Ppd #3	401	2.2	1.35	1.9	na
21034.0	1511	South India Basin-Site 2	327	1.8	0.89	1.3	0.45
21310.0	1755	San Leandro Bay-Site 3	290	1.6	0.56	0.8	0.90
21304.0	1737	Islais Creek- End Gradient	278	1.5	0.60	0.9	0.62
21082.0	1564	S.F. Airport - Seaplane Harbor	249	1.4	0.23	0.3	na
21028.0	1505	San Leandro Bay -Site 2	220	1.2	0.68	1.0	0.77
21006.0	1483	Peyton Slough-Upper-Site 2	217	1.2	0.57	0.8	3.58
21303.0	1736	Islais Creek- Mid Gradient	205	1.1	0.97	1.4	0.60
21057.0	1537	Lake Merrit - Mw #307.5	196	1.1	0.97	1.4	na
21026.0	1503	Oakland-Fruitvale	195	1.1	0.68	1.0	0.54
21019.0	1496	Cordornices Creek Mouth	177	1.0	1.02	1.4	na
21074.0	1556	Howard Street CSO	176	1.0	0.34	0.5	0.35
21312.0	1757	San Leandro Bay-Site 5	167	0.9	0.59	0.8	0.67
21037.0	1514	Oyster Point (East)-Site 2	154	0.9	0.33	0.5	na
21313.0	1758	San Leandro Bay-Site 6	144	0.8	1.18	1.7	0.44
21086.0	1568	Redwood Creek - West	141	0.8	0.90	1.3	na
21030.0	1507	Mission Creek- Site 1	140	0.8	0.45	0.6	0.51
21018.0	1495	Cerrito Creek Mouth	138	0.8	0.70	1.0	na
21025.0	1502	North Government Island	135	0.8	0.91	1.3	na
21089.0	1571	Ravenswood Slough - West	133	0.7	0.25	0.4	na
21017.0	1494	Richmond Inner Hbr.-Hoffman Mr	131	0.7	0.37	0.5	0.25
21402.0	1796	Stege Marsh =2	122	0.7	1.07	1.5	0.61
21083.0	1565	S.F. Airport - Central	120	0.7	0.19	0.3	na
21307.0	1746	Waldo Point	115	0.6	na	na	na
21084.0	1566	S.F. Airport - South	113	0.6	0.59	0.8	na
21038.0	1515	San Bruno Channel	109	0.6	0.40	0.6	na

Table 17 (Continued). Sediment PCB and Mercury Concentrations.

Station Number	Sample Number	Station	Total PCBs		Mercury		All Chemicals Mean ERMQ
			ppb dry	ERM Q	ppb dry	ERM Q	
21022.0	1499	Oakland Inner Hbr.-Schnitzer	104	0.6	0.45	0.6	0.36
21021.0	1498	Oakland Inner Hbr.-Todd Shipyd	100	0.6	0.52	0.7	0.39
21020.0	1497	Emeryville Marsh	97	0.5	0.34	0.5	na
21040.0	1517	Steinberger Slough-Nr Freeway	92	0.5	0.16	0.2	na
21032.0	1509	Potrero Point-Warm Water Cove	88	0.5	0.32	0.5	0.68
21058.0	1538	Pg&E-Vallejo-Coal Gas Plant	85	0.5	0.55	0.8	na
21315.0	1760	Pg&E/Levinson	85	0.5	na	na	na
21076.0	1558	Central Basin - Inner	84	0.5	0.74	1.0	0.50
21036.0	1513	Oyster Point (West)-Site 1	78	0.4	0.31	0.4	na
21014.0	1491	Point Portrero- Site 2	69	0.4	9.14	12.9	na
21015.0	1492	Santa Fe Channel- End	67	0.4	0.51	0.7	na
21016.0	1493	Richmond Harbor	65	0.4	0.49	0.7	0.23
21305.0	1739	Peyton Slough- Mid Gradient	60	0.3	0.31	0.4	0.40
21306.0	1740	Peyton Slough- End Gradient	54	0.3	0.26	0.4	0.30
21087.0	1569	Coyote Creek - Cx	51	0.3	0.67	0.9	na
21088.0	1570	Alviso Slough	47	0.3	0.46	0.6	na
21302.0	1734	Mission Creek- End Gradient	45	0.3	0.49	0.7	0.28
21047.0	1524	Coyote Slough-@Fixed R/R Bridg	44	0.2	0.86	1.2	na
21006.0	1738	Peyton Slough-Upper-Site 2	42	0.2	0.27	0.4	2.35
21039.0	1516	Steinberger Slough- Nr Mouth	41	0.2	0.36	0.5	na
21035.0	1512	Sierra Point	39	0.2	0.30	0.4	na
21088.0	1620	Alviso Slough	37	0.2	0.84	1.2	na
21043.0	1520	Mayfield Slough-Near Sand Pt.	34	0.2	0.44	0.6	na
21031.0	1508	Mission Creek- Site 2	33	0.2	0.24	0.3	0.22
20010.0	1489	Castro Cove	32	0.2	2.93	4.1	2.25
21069.0	1549	Sausalito Harbor-Anderson B.Y.	31	0.2	0.46	0.6	na
21069.0	1619	Sausalito Harbor-Anderson B.Y.	30	0.2	0.28	0.4	na
21049.0	1529	Dow Chemical- Kirker Creek	30	0.2	5.73	8.1	na
21033.0	1510	North India Basin-Site 1	29	0.2	0.64	0.9	na
21075.0	1557	Brannan Street Cso - Pier 32	28	0.2	0.31	0.4	0.23
21070.0	1550	Yerba Buena Island - Naval Stn	28	0.2	0.26	0.4	na
21041.0	1518	Guadalupe Slough	26	0.1	0.43	0.6	0.32
21068.0	1616	Silva Island Marsh-MC61	24	0.1	0.38	0.5	0.17
21008.0	1485	Vallejo-Mare Is-Ship Anchorage	23	0.1	0.43	0.6	na
21085.0	1621	Redwood Creek Ba40	23	0.1	0.34	0.5	na
20005.0	1219	Paradise Cove-Rep 1	22	0.1	0.35	0.5	0.18
20005.0	1552	Paradise Cove-Rep 1	22	0.1	0.33	0.5	0.17
21071.0	1553	Treasure Island - Clipper Cove	22	0.1	0.32	0.5	na
21090.0	1572	South Bay Basin - BA20	21	0.1	0.19	0.3	na
21042.0	1519	Mayfield Slough-Nr Cooley Ldng	21	0.1	0.38	0.5	na
21079.0	1561	Gashouse Cove - Laguna St. CSO	21	0.1	0.32	0.4	0.23
20005.0	1461	Paradise Cove-Rep 1	21	0.1	0.26	0.4	0.18
21085.0	1567	Redwood Creek - BA40	21	0.1	0.39	0.6	na

Table 17 (Continued). Sediment PCB and Mercury Concentrations.

Station Number	Sample Number	Station	Total PCBs		Mercury		All Chemicals Mean ERMQ
			ppb dry	ERM Q	ppb dry	ERM Q	
21077.0	1559	Central Basin - Outer	20	0.1	0.27	0.4	0.22
21091.0	1573	Dumbarton Bridge - BA30	20	0.1	0.34	0.5	na
21308.0	1747	Warm Water Cove #2	19	0.1	na	na	na
20005.0	1220	Paradise Cove-Rep 2	19	0.1	0.26	0.4	0.16
21067.0	1547	Richmond Rod And Gun	19	0.1	0.33	0.5	na
20013.0	1473	N. South Bay Ref.-Rep 2	19	0.1	0.22	0.3	0.14
21073.0	1555	Sansome Street CSO - Pier 31	19	0.1	0.27	0.4	0.19
21046.0	1523	Mowry Slough	18	0.1	0.59	0.8	na
21072.0	1554	Corte Madera Marsh - MC51	18	0.1	0.39	0.6	na
20005.0	1221	Paradise Cove-Rep 3	18	0.1	0.25	0.3	0.16
20013.0	1472	N. South Bay Ref.-Rep 1	18	0.1	0.26	0.4	0.14
20013.0	1474	N. South Bay Ref.-Rep 3	18	0.1	0.26	0.4	0.14
20014.0	1477	S. South Bay Ref.-Rep 3	18	0.1	0.19	0.3	0.14
20014.0	1475	S. South Bay Ref.-Rep 1	18	0.1	0.20	0.3	0.14
21055.0	1535	Semple Point-M.W. Va-7	18	0.1	0.29	0.4	na
20005.0	1741	Paradise Cove- Reference	18	0.1	0.31	0.4	0.16
20014.0	1476	S. South Bay Ref.-Rep 2	17	0.1	0.20	0.3	0.14
21062.0	1542	Gallinas Creek- MD20	17	0.1	0.34	0.5	na
20005.0	1488	Paradise Cove- Reference	17	0.1	0.32	0.5	na
20006.0	1467	San Pablo Bay-Tubbs Is.-Rep 1	17	0.1	0.39	0.5	0.17
21059.0	1539	Petaluma River Mouth- BD20	16	0.1	0.36	0.5	na
20014.0	1522	South-South Bay-Reference	16	0.1	0.24	0.3	na
20006.0	1224	San Pablo Bay-Tubbs Is.- Rep 3	16	0.1	0.29	0.4	0.15
21062.0	1613	Gallinas Creek-MD20	16	0.1	0.33	0.5	na
21056.0	1536	Selby - S2	15	0.1	0.32	0.4	0.23
20013.0	1574	North South Bay - Rep 1	15	0.1	0.16	0.2	0.11
20006.0	1222	San Pablo Bay-Tubbs Is.- Rep 1	15	0.1	0.32	0.4	0.17
20006.0	1622	San Pablo Bay-Tubbs Is. Rep 1	14	0.1	0.37	0.5	na
20006.0	1223	San Pablo Bay-Tubbs Is.- Rep 2	13	0.1	0.27	0.4	0.15
21010.0	1487	San Pablo Bay- Hamilton	13	0.1	0.38	0.5	na
20007.0	1227	San Pablo Bay-Island #1-Rep 3	13	0.1	0.26	0.4	0.15
21066.0	1546	Napa Slough- MD32	13	0.1	0.43	0.6	na
20007.0	1225	San Pablo Bay-Island #1-Rep 1	13	0.1	0.25	0.4	0.14
21065.0	1614	Sonoma Creek-MD33	13	0.1	0.32	0.5	na
20006.0	1551	San Pablo Bay-Tubbs Is.-Rep #1	13	0.1	0.35	0.5	na
20007.0	1226	San Pablo Bay-Island #1-Rep 2	13	0.1	0.27	0.4	0.15
21065.0	1545	Sonoma Creek- MD33	12	0.1	0.33	0.5	na
20007.0	1486	San Pablo Bay-Is. #1 Reference	12	0.1	0.33	0.5	na
21001.0	1478	North Reserve Fleet-Suisun	12	0.1	0.29	0.4	na
21063.0	1543	Novato Creek- MD21	12	0.1	0.33	0.5	na
20014.0	1575	South South Bay - Rep 1	12	0.1	0.42	0.6	na
20007.0	1464	San Pablo Bay-Island #1-Rep 1	11	0.1	0.24	0.3	na
21053.0	1533	Suisun Slough	11	0.1	0.28	0.4	0.15
			11	0.1	0.24	0.3	na

Table 17 (Continued). Sediment PCB and Mercury Concentrations.

Station Number	Sample Number	Station	Total PCBs		Mercury		All Chemicals Mean ERMQ
			ppb dry	ERM Q	ppb dry	ERM Q	
21063.0	1618	Novato Creek-MD21	11	0.1	0.34	0.5	na
21029.0	1506	San Francisco- Pier 7	11	0.1	0.91	1.3	0.21
21007.0	1484	Vallejo-Mare Island-North Side	11	0.1	0.36	0.5	na
21061.0	1541	Miller Creek- MD11	11	0.1	0.34	0.5	na
21002.0	1479	South Reserve Fleet-Suisun	10	0.1	0.32	0.5	na
21050.0	1530	Grizzly Bay- Rmp BF20	10	0.1	0.26	0.4	na
21051.0	1531	Boynton Slough- MF10	10	0.1	0.11	0.2	na
21004.0	1481	Pacheco Cr-Above Bridge-Site 2	10	0.1	0.35	0.5	na
20013.0	1521	North-South Bay-Reference	10	0.1	0.20	0.3	na
21060.0	1540	Miller Creek- MD10	10	0.1	0.16	0.2	na
21003.0	1480	Pacheco Cr-Near Mouth-Site 1	10	0.1	0.20	0.3	na
21054.0	1615	Chadborne Slough-MF13	10	0.1	0.25	0.3	0.14
21052.0	1532	Hill Slough- MF21	9	0.1	0.16	0.2	na
21064.0	1544	Tolay Creek Mouth- MD31	9	0.1	0.32	0.5	na
20008.0	1576	Bolinas Lagoon	9	0.1	0.09	0.1	na
21061.0	1617	Miller Creek-MD11	9	0.1	0.12	0.2	na
21309.0	1752	San Bruno Channel #2	na	na	0.66	0.9	na

Table 18. Acid-Volatile Sulfides (AVS) and Simultaneously Extracted Metals (SEM) Measured at Selected Stations. Asterisks* indicate significant toxicity (reference tolerance limits for amphipods; t-test/MSD for sea urchin development).

Station Number	Sample Station	Date	SEM Cd ($\mu\text{M/g}$)	SEM Cu ($\mu\text{M/g}$)	SEM Ni ($\mu\text{M/g}$)	SEM Pb ($\mu\text{M/g}$)	SEM Zn ($\mu\text{M/g}$)	SEM Sum ($\mu\text{M/g}$)	AVS ($\mu\text{M/g}$)	SEM-AVS Difference	Toxicity Surv. %	Amph. Surv. %	Urchin Dev. %
213030	1732	Mission Creek Site 1	4/1/97	0.024	0.291	0.382	3.950	12.500	17.10	102.00	-84.90	19*	11*
213031	1733	Mission Creek Mid Gradient	4/1/97	0.014	0.671	0.251	1.070	4.700	6.70	93.10	-86.40	58*	98
213032	1734	Mission Creek End Gradient	4/1/97	0.002	0.508	0.236	0.161	1.350	2.26	4.38	-2.12	80	94
		Isla's Creek											
200111	1735	Isla's Creek	4/1/97	0.006	0.162	0.180	0.992	4.360	5.70	75.00	-69.30	0*	8*
213033	1736	Isla's Creek Mid Gradient	4/1/97	0.005	0.522	0.365	0.253	2.100	3.24	109.00	-105.76	81	45*
213034	1737	Isla's Creek End Gradient	4/1/97	0.004	0.485	0.290	0.242	1.940	2.96	45.50	-42.54	49*	76
		Peyton Slough											
210066	1738	Peyton Slough Upper-Site 2	4/2/97	0.022	3.010	0.318	0.194	10.700	14.30	28.80	-14.50	69*	1*
213035	1739	Peyton Slough Mid Gradient	4/2/97	0.021	7.330	0.291	0.301	12.900	20.90	3.56	17.34	59*	0*
213036	1740	Peyton Slough End Gradient	4/2/97	0.025	2.430	0.365	0.205	28.300	31.30	15.40	15.90	14*	81
		Reference Site											
200055	1741	Paradise Cove	4/3/97	0.002	0.434	0.288	0.087	0.725	1.53	0.18	1.35	79	96
		Pacific Drydock											
210233	1753	Pacific Drydock Yard 1	4/15/97	0.022	2.810	0.512	1.840	17.000	22.20	176.00	-153.80	0*	72
		San Leandro Bay											
21310	1755	San Leandro Bay Site 3	4/17/97	0.011	0.699	0.214	0.542	3.750	5.21	15.30	-10.09	40*	94
21311	1756	San Leandro Bay Site 4	4/17/97	0.045	0.764	0.149	1.210	6.320	8.48	5.73	2.75	65*	19*
21312	1757	San Leandro Bay Site 5	4/17/97	0.008	1.140	0.241	0.395	4.600	6.39	6.08	0.31	76	77
21313	1758	San Leandro Bay Site 6	4/17/97	0.005	0.518	0.137	0.352	2.510	3.52	3.16	0.36	70	96
21314	1759	San Leandro Bay Site 7	4/16/97	0.040	0.503	0.272	0.962	8.340	10.10	37.80	-27.70	96	14*

Table 19a. Results of Laboratory Bioaccumulation Exposures with *Macoma nasuta*, Trace Metals. Tissue concentrations are shown for all chemicals found at concentrations at least twice as high as those from clams exposed to laboratory control (reference) sediment. "x Ref" indicates the quotient from dividing the sample tissue concentration by that of the control. Asterisks indicate values that were at least 10 times greater than reference, or were above USEPA or NAS guidelines.

Station Number	Sample Number	Station	LOG		COPPER		LEAD		MERCURY	
			(Batch)	mg/kg	x Ref	mg/kg	x Ref	mg/kg	x Ref	mg/kg
21030	1732.1	Mission Creek	50.0	10.80	1.0	9.54*	11.4*	0.31	2.2	
20011	1735.1	Islais Creek	50.0	8.70	0.8	1.19	1.4	0.09	0.6	
21006	1738.1	Peyton Slough- Upper Site 2	50.0	139.00*	12.8*	32.50*	38.7*	0.11	0.8	
21011	1741.1	Paradise Cove- Reference	50.0	13.80	1.3	2.10	2.5	0.13	0.9	
21308	1747.1	Warm Water Cove #2	50.0	na		na		na		
	1802.1	Initial - Prior To Exposure	50.0	12.00	1.1	1.16	1.4	0.12	0.8	
	1803.1	Home Control - Reference Sediment	50.0	10.90	1.0	0.84	1.0	0.14	1.0	
21023	1753.1	Pacific Drydock- Yard 1	51.0	37.90	3.5	17.40*	20.7*	0.18	1.3	
21310	1755.1	San Leandro Bay- Site 3	51.0	16.60	1.5	10.70*	12.7*	0.16	1.1	
	1804.1	Initial - Prior To Exposure	51.0	13.00	1.2	0.88	1.0	0.11	0.8	
	1803.1	Home Control - Reference Sediment	50.0	10.90	1.0	0.84	1.0	0.14	1.0	
21401	1795.1	Stege Marsh #1	55.0	9.40	1.4	3.84	4.0	0.14	1.6	
21402	1796.1	Stege Marsh #2	55.0	11.00	1.6	1.00	1.0	0.03	0.4	
21403	1797.1	Stege Marsh #3	55.0	6.50	0.9	3.15	3.3	0.12	1.4	
	1811.1	Initial - Prior To Exposure	55.0	9.00	1.3	8.20	8.5	0.06	0.7	
	1812.1	Home Control - Reference Sediment	55.0	6.90	1.0	0.96	1.0	0.08	1.0	
NAS		Wildlife Guideline (Whole Fish)	na	na		na		na		
USEPA		Screening Value (Edible Portion)	na	na		na		0.6000		

Table 19b. Results of Laboratory Bioaccumulation Exposures with *Macoma nasuta*, Trace Chlorinated Organics. Tissue concentrations are shown for all chemicals found at concentrations at least twice as high as those from clams exposed to laboratory control (reference) sediment. "x Ref" indicates the quotient from dividing the sample tissue concentration by that of the control. Asterisks indicate values that were at least 10 times greater than reference, or were above USEPA or NAS guidelines.

Station Number	Sample Station	1.0g (Batch)		Total Chlordane		Total DDT		Dieldrin		Total PCB	
		µg/kg	x Ref	µg/kg	x Ref	µg/kg	x Ref	µg/kg	x Ref	µg/kg	x Ref
21030	1732.1 Mission Creek	50.0	3.37	6.7	3.64	0.6	1.04	0.8	11.43*	3.2	
20011	1735.1 Iskais Creek	50.0	0.56	1.1	2.21	0.3	0.32	0.3	6.17	1.7	
21006	1738.1 Peyton Slough- Upper Site 2	50.0	0.62	1.2	3.53	0.5	0.69	0.5	4.46	1.2	
21011	1741.1 Paradise Cove- Reference	50.0	0.60	1.2	3.84	0.6	0.73	0.6	5.39	1.5	
21308	1747.1 Warm Water Cove #2	50.0	0.56	1.1	3.75	0.6	0.57	0.4	5.42	1.5	
18021	Initial - Prior To Exposure	50.0	0.50	1.0	2.21	0.3	1.01	0.8	3.60	1.0	
1803.1	Home Control - Reference Sediment	50.0	0.50	1.0	6.59	1.0	1.27	1.0	3.60	1.0	
21023	1753.1 Pacific Drydock- Yard 1	51.0	4.84	9.7	10.92	1.7	1.31	1.0	12.93*	3.6	
21310	1755.1 San Leandro Bay- Site 3	51.0	5.90*	11.8*	13.46	2.0	1.57	1.2	30.61*	8.5	
1804.1	Initial - Prior To Exposure	51.0	0.50	1.0	2.38	0.4	0.26	0.2	3.59	1.0	
1803.1	Home Control - Reference Sediment	50.0	0.50	1.0	6.59	1.0	1.27	1.0	3.60	1.0	
21401	1795.1 Stege Marsh #1	55.0	1.36	1.4	15.99	8.0	1.15	9.8	38.65*	10.3*	
21402	1796.1 Stege Marsh #2	55.0	2.25	2.4	45.56*	22.7*	0.48	4.1	45.95*	12.3*	
21403	1797.1 Stege Marsh #3	55.0	7.41	7.8	63.45*	31.6*	2.01*	17.2*	31.69*	8.5	
1811.1	Initial - Prior To Exposure	55.0	0.87	0.9	1.97	1.0	nd	nd	3.96	1.1	
1812.1	Home Control - Reference Sediment	55.0	0.95	1.0	2.01	1.0	0.12	1.0	3.74	1.0	
NAS	Wildlife Guideline (Whole Fish)	na	50	na	300	7	na	500	10		
USEPA	Screening Value (Edible Portion)	80	80	na	na	7	na	na	na		

Table 19e. Results of Laboratory Bioaccumulation Exposures with *Macoma nasuta*, Polycyclic Aromatic Hydrocarbons. Tissue concentrations are shown for all chemicals found at concentrations at least twice as high as those from clams exposed to laboratory control (reference) sediment. "x Ref" indicates the quotient from dividing the sample tissue concentration by that of the control. Asterisks indicate values that were at least 10 times greater than reference, or were above USEPA or NAS guidelines.

Station Number	Sample Station	Leg (Batch)	LMWPAH		HMWPAH		TTLPAH	
			µg/kg	x Ref	µg/kg	x Ref	µg/kg	x Ref
21030	1732.1 Mission Creek	50.0	38.72	9.8	57.15	9.0	95.87	9.3
20011	1735.1 Islais Creek	50.0	5.35	1.4	12.31	1.9	17.66	1.7
21006	1738.1 Peyton Slough- Upper Site 2	50.0	5.27	1.3	15.35	2.4	20.62	2.0
21011	1741.1 Paradise Cove- Reference	50.0	3.77	1.0	16.95	2.7	20.72	2.0
21308	1747.1 Warm Water Cove #2	50.0	7.23	1.8	26.81	4.2	34.04	3.3
1802.1	Initial - Prior To Exposure	50.0	6.64	1.7	5.86	0.9	12.50	1.2
1803.1	Home Control - Reference Sediment	50.0	3.94	1.0	6.34	1.0	10.28	1.0
21023	1753.1 Pacific Drydock- Yard 1	51.0	173.77*	44.1*	520.87*	82.2*	694.64*	67.6*
21310	1755.1 San Leandro Bay- Site 3	51.0	3.40	0.9	45.75	7.2	49.15	4.8
1804.1	Initial - Prior To Exposure	51.0	4.39	1.1	6.59	1.0	10.98	1.1
1803.1	Home Control - Reference Sediment	50.0	3.94	1.0	6.34	1.0	10.28	1.0
21401	1795.1 Stege Marsh #1	55.0	10.01	3.0	73.65*	19.1*	83.66*	11.6*
21402	1796.1 Stege Marsh #2	55.0	33.84*	10.0*	217.26*	56.3*	251.10*	34.7*
21403	1797.1 Stege Marsh #3	55.0	8.42	2.5	99.58*	25.8*	108.00*	14.9*
1811.1	Initial - Prior To Exposure	55.0	5.84	1.7	15.07	3.9	20.91	2.9
1812.1	Home Control - Reference Sediment	55.0	3.38	1.0	3.86	1.0	7.24	1.0
NAS	Wildlife Guideline (Whole Fish)	na	na	na	na	na	na	na
USEPA	Screening Value (Edible Portion)	na	na	na	na	na	na	na

Table 19d. Summary of Laboratory Bioaccumulation. Chemicals found at elevated concentrations in tissues of clams *Macoma nasuta* exposed to samples in the laboratory.

Station Number	Sample Number	Station	Chemical	Value Exceeded
21030	1732.1	Mission Creek	Total PCBs	USEPA Screening Value
20011	1735.1	Isla's Creek	None	> 10 times reference
21006	1738.1	Peyton Slough- Upper Site 2	Copper, Lead	USEPA Screening Value
21011	1741.1	Paradise Cove- Reference	None	> 10 times reference
21308	1747.1	Warm Water Cove #2	None	USEPA Screening Value
21023	1753.1	Pacific Drydock- Yard 1	Lead,	> 10 times reference
			Total PCBs,	USEPA Screening Value
			LMW, HMW and Total PAHs	>> 10 times reference (see Table 19c)
21310	1755.1	San Leandro Bay- Site 3	Lead, chlordane	> 10 times reference
21401	1795.1	Stege Marsh #1	Total PCBs	USEPA Screening Value and > 10 time reference
21402	1796.1	Stege Marsh #2	Total DDT	> 10 times reference
			Total PCBs	USEPA Screening Value and > 10 time reference
			LMW, HMW and Total PAHs	USEPA Screening Value and > 10 time reference
21403	1797.1	Stege Marsh #3	Total DDT	> 10 times reference
			Dieldrin	USEPA Screening Value and > 10 time reference
			Total PCBs	> 10 times reference
			HMW and Total PAHs	> 10 times reference

Table 20. Abundances Of Infaunal Benthic Invertebrates And Relative Benthic Index Values.

Station Number	Sample Number	Station Name	Amphipods Ind. Species	All Crustaceans Ind. Species	Mollusks Ind. Species	Polychaetes Ind. Species	Total Number Ind. Species	Relative Benthic
21401.0	1799	Stege Marsh #1	0	0	0	0	0	0
21402.0	1800	Stege Marsh #2	0	0	0	0	0	0
21404.0	1801	Carlson Creek	21	2	66	5	17	2
20011.0	1735	Islais Creek	0	0	3	1	0	0.22
21303.0	1736	Islais Creek- Mid Gradient	0	0	1	1	0	0.25
21304.0	1737	Islais Creek- End Gradient	4	2	16	3	0	0.43
*	*	Castro Cove	*	*	*	*	*	*0.61 to 0.94
21006.0	1738	Peyton Slough-Upper-Site 2	192	2	193	2	0	1
21305.0	1739	Peyton Slough- Mid Gradient	962	2	969	3	1	0.36
21306.0	1740	Peyton Slough- End Gradient	4	1	14	2	0	0.51
21030.0	1732	Mission Creek- Site 1	1	1	1	0	0	0.34
21301.0	1733	Mission Creek- Mid Gradient	0	0	1	1	0	0.00
21302.0	1734	Mission Creek- End Gradient	4	1	88	2	3	0.24
21310.0	1755	San Leandro Bay-Site 3	19	2	38	4	22	10
21311.0	1756	San Leandro Bay-Site 4	87	2	108	4	29	6.65
21312.0	1757	San Leandro Bay-Site 5	16	1	281	2	62	3
21313.0	1758	San Leandro Bay-Site 6	48	3	563	5	6	1.00
21314.0	1759	San Leandro Bay-Site 7	1	1	163	2	71	0.66
21308.0	1747	Warm Water Cove #2	7	1	103	2	5	0.58
20005.0	1741	Paradise Cove-Reference	2	1	24	2	0	0.50
20007.0	1750	SP Bay-Island #1 - Reference	0	0	21	1	18	0.39
20013.0	1749	N. South Bay - Reference	1	1	3	1	128	0.58
								9

*Castro Cove benthic community samples were collected in May, 1992 (BPTCP PRMP Studies), and were compared with reference assemblages sampled in 1997. All other benthic community samples were collected in 1997.

Table 21. Correlations Between Chemistry and Biological Effects. All chemicals in this table were identified by Principle Components Analysis (PCA) as being associated with biological effects. They are displayed in three categories: chemicals significantly negatively correlated* with biological indicator(s) in univariate Spearman Rank correlations ($\alpha = 0.05$), chemicals that exceeded ERM guideline values in at least one sample, and chemicals identified by PCA but neither significantly correlated with Spearmans nor having any samples with concentrations above ERMs (Other Chemicals). Chemicals found in both of the first two categories were most likely to have been associated with the indicated biological effects.

Biological Indicator	PCA Factors Associated With Biological Indicators		
	Chemicals Negatively Correlated with Biological Indicators	Chemicals Exceeding ERM Guideline Values	Other Chemicals Identified By PCA
Amphipod survival in solid-phase sediment toxicity tests (organic chemicals only; no significant PCA relationships were apparent between amphipod toxicity and other factors when the entire data set, including metals, was analyzed with PCA)	Total Chlordanes, 2-Methylnaphthalene, mean ERM quotient, number of ERM exceedences, Hydrogen sulfide, Total organic carbon, cis-Chlordane, trans-Chlordane, alpha-Chlordene, Chlorpyrifos, Endosulfan II, cis-Nonachlor, trans-Nonachlor, 2,6-Dimethylnaphthalene, 1-Methylnaphthalene, 235 Trimethylnaphthalene	Total Chlordanes, 2-Methylnaphthalene, mean ERM quotient, number of ERM exceedences	None
Urchin development in 25/50% porewater (all chemicals)**	None	Cadmium, Copper, Silver, Zinc, metal quotient, mean ERM quotients	Antimony, Tin
Urchin development in SWI exposures (all chemicals)***	Cadmium, Copper, Zinc, metal quotient, number of ERM exceedences, Antimony	Cadmium, Copper, Zinc, metal quotient, number of ERM exceedences, Arsenic, Lead, Mercury, Silver, Total DDTs, PEL quotient, PEL exceedences	Selenium, Tin, trans-Chlordane, alpha-Chlordene, p,p'-Dichlorobenzophenone, alpha-HCH, beta-HCH, Lindane, delta-HCH, Hexachlorobenzene, 2,6-Dimethylnaphthalene, 1-Methylphenanthrene, 2,3,5-Trimethylnaphthalene, Hydrogen sulfide
Relative Benthic Index****	None	metal quotient, mean ERM quotient	None

* Based on pairwise Spearman rank correlations, $\alpha = 0.05$, one-tailed test.
** Based on correlations with at least one of the two biological indicators. No correlations were apparent with 100% porewater tests.
*** Based on a combination of two significant PCA factors.
**** Based on a short chemical list—Total Chlordanes, Total DDTs, Total PCBs, Total PAHs, ERM quotient, and Metal summation quotient. Short list necessitated by low number of benthic data available.

Table 22. Phase I Toxicity Identification Evaluation of Sample # 1751 from Guadalupe Slough. Data are percent normal development of sea urchin larvae in dilutions of sediment porewater treated with various TIE manipulations.

Initial Test	Brine	Porewater Concentrations					
		Control	0%	6%	13%	25%	50%
% Normal	95%	94%	98%	97%	98%	69%	0%

Phase I TIE Treatments	Porewater Concentrations				Effective Treatment
	0%	25%	50%	100%	
Baseline	91%	98%	48%	0%	
EDTA	96%	98%	97%	95%	EDTA
STS	97%	61%	6%	0%	
Aeration	97%	98%	70%	0%	
Filtration	96%	91%	53%	1%	
Column	97%	98%	46%	25%	
Eluate	88%	81%	84%	89%	
pH 7.9	95%	73%	31%	1%	
pH 8.1	96%	89%	36%	5%	
pH 8.4	95%	97%	48%	0%	
PBO	93%	97%	55%	5%	

Table 23. Phase I Toxicity Identification Evaluation of Sample # 1738 from Upper Peyton Slough Site 2. Data are percent normal development of sea urchin larvae in dilutions of sediment porewater treated with various TIE manipulations.

Initial Test	Porewater Concentrations					
	0%	6%	13%	25%	50%	100%
% Normal	94%	92%	22%	0%	0%	0%

Phase I TIE Treatments	Porewater Concentrations				Effective Treatments
	0%	3%	5%	15%	
Baseline	87%	98%	69%	0%	
EDTA	96%	97%	97%	97%	EDTA
STS	76%	98%	96%	79%	STS
Aeration	98%	85%	79%	0%	
Filtration	95%	72%	96%	94%	Filtration
Column	95%	95%	100%	94%	Column
Eluate	99%	98%	96%	99%	
pH 7.9	97%	45%	52%	0%	
pH 8.1	97%	94%	84%	0%	
pH 8.4	95%	96%	51%	0%	
PBO	97%	95%	79%	0%	

Table 24. Effects of EDTA on Sediment-Water Interface Exposures with Samples from the Stege Marsh Area.

Station Number	Sample Number	Station	Percent Normal Urchin Development			
			SWI Exposure		SWI with EDTA	
			Mean	S.D.	Mean	S.D.
21401	1795	Stege Marsh # 1	0%	0%	0%	0%
21402	1796	Stege Marsh # 2	0%	0%	0%	0%
21403	1797	Stege Marsh # 3	19%	16%	50%	23%
21404	1798	Carlson Creek	24%	18%	na	na
Home	Home	Lab Control	86%	5%	82%	10%

Table 25a. Sea urchin larval development and chemical indicators along a gradient at Mission Creek. Asterisk * indicates that sea urchins were exposed to porewater from the 5/1/95 samples, and were exposed to the sediment-water interface from the 4/1/97 samples. 112S measurements were from the corresponding sea urchin exposures.

Station Number	Sample Number	Mission Creek Gradient Stations	Date	Sea Urchin *		ERM Quotients						112S * (mg/L)
				% Larval Development	All Chem	Pb	Hg	Ag	Zn	Total Chlordanes	Total PCBs	
21030	1507	Upper End	5/1/95	0.00	0.5	1.2	0.6	0.7	0.8	1.7	0.8	0.9204
21031	1508	Creek Mouth	5/2/95	57.00	0.2	0.2	0.3	0.2	0.4	0.4	0.2	0.0151
21030	1732	Upper End	4/1/97	11.00	3.9	9.6	10.8	4.0	4.0	21.4	4.1	0.0244
21301	1733	Mid Gradient	4/1/97	98.00	1.0	0.6	0.6	0.4	0.5	8.0	2.2	0.0039
21302	1734	Near Mouth	4/1/97	94.00	0.3	0.2	0.7	0.1	0.6	0.5	0.3	0.0005

Table 25b. Relative Benthic Index, amphipod survival, and chemical indicators along a gradient at Mission Creek.

Station Number	Sample Number	Mission Creek Gradient Stations	Date	Relative Benthic Index	Amphipod (<i>Etoehaus</i>) Survival	ERM Quotients						TOC (%)	
						Mean All Chem	Pb	Hg	Ag	Zn	Total Chlordanes	Total PCBs	
21030	1507	Upper End	5/1/95	na	5.00	0.5	1.2	0.6	0.7	0.8	1.7	0.8	0.1123
21031	1508	Creek Mouth	5/2/95	na	83.00	0.2	0.2	0.3	0.2	0.4	0.4	0.2	0.0562
21030	1732	Upper End	4/1/97	0.00	19.00	3.9	9.6	10.8	4.0	4.0	21.4	4.1	0.4493
21301	1733	Mid Gradient	4/1/97	0.34	58.00	1.0	0.6	0.6	0.4	0.5	8.0	2.2	0.0959
21302	1734	Near Mouth	4/1/97	0.65	80.00	0.3	0.2	0.7	0.1	0.6	0.5	0.3	0.1018

Table 26a. Sea urchin larval development and chemical indicators along a gradient at Islais Creek.

Station Number	Sample Number	Gradient Station	Islais Creek	Sea Urchin Development	% Larval Survival	Mean, All Chemicals	Total Chlordanes	Total PCBs	Total Wt. PAHs	Low Mol. Wt. PAHs	ERM Quotients	NIB (mg/l.)
20011	1735	Upper End		8	1.2	7.2	5.4	1.0	0.406			
21303	1736	Mid Gradient		45	0.6	2.9	1.1	0.3	0.105			
21304	1737	Lower End		76	0.6	2.5	1.5	0.4	0.312			

Table 26b. Relative Benthic Index, amphipod survival, and chemical indicators along a gradient at Islais Creek.

Sample Number	Islais Creek Gradient Station	Relative Benthic Index	Amphipod <i>Eohaustorius</i> % Survival	Mean, All Chemicals	Total Chlordanes	Total PCBs	Total Wt. PAHs	H2S (mg/L)	FINES (%)	TOC (%)
1735	Upper End	0.22	0	1.2	7.2	5.4	1.0	0.462	39	3.99
1736	Mid Gradient	0.25	81	0.6	2.9	1.1	0.3	0.061	100	2.68
1737	Lower End	0.43	49	0.6	2.5	1.5	0.4	0.061	100	2.99

Table 27a. Sea urchin larval development and chemical indicators along a gradient at Peyton Slough. The End Gradient station is near the mouth of the slough. Asterisk* indicates that sea urchins were exposed to porewater from the 5/1/95 sample, and were exposed to the sediment-water interface from the 4/2/97 samples.

Station Number	Sample Number	Date	Peyton Slough Gradient Stations	Sea Urchin % Larval	Mean ERM	Mean ERM Quotient for 9 Metals	ERM Zinc Quotient	ERM Zinc Quotient*	NI13 (mg/L)
21006.0	1483	5/1/95	Upper Slough Site 2	0	3.6	5.7	28.9	14.6	0.011
21006.0	1738	4/2/97	Upper Slough Site 2	1	2.3	4.0	14.0	11.4	0.038
21305.0	1739	4/2/97	Mid Gradient	0	0.4	0.6	1.4	1.8	0.366
21306.0	1740	4/2/97	End Gradient	81	0.3	0.4	0.5	1.8	0.017

Table 27b. Relative Benthic Index, amphipod survival, and chemical indicators along a gradient at Peyton Slough. The End Gradient station is near the mouth of the slough.

Station Number	Sample Number	Date	Peyton Slough Gradient Stations	Relative Benthic Index	Amphipod <i>Eidmanniaris</i> Survival (%)	Porewater H2S (mg/L)	Mean ERM	ERM Total Chlordanes	ERM Quotient	% Fines	TOC (%)
21006	1483	5/1/95	Upper Slough Site 2	na	1	0.045	3.6	3.5	3.5	89.70	4.01
21006	1738	4/2/97	Upper Slough Site 2	0.36	69	0.028	2.3	1.0	43.36	1.38	
21305	1739	4/2/97	Mid Gradient	0.51	59	0.046	0.4	0.2	100.00	4.01	
21306	1740	4/2/97	End Gradient	0.34	14	0.142	0.3	0.3	100.00	1.82	

Table 28. Categorization of Stations Based on Integrated Monitoring Data. Stations in close geographic proximity are often grouped together based on the results from the most impacted station of the group, with associated stations in parentheses. N indicates NH₃ and S indicates H₂S above threshold values; arrows ^ indicate > 5 times threshold values (see footnotes). Asterisks* indicate significant toxicity (tolerance limits for amphipods, t-tests/MSD for sea urchins).

Station Number	Sample Number	Station (Sampling Date)	Toxicity Test Results				Mean ERM Quotient	Number of Chemicals with Concentrations Exceeding Either* ERMs or Top 10%	Relative Benthic Index
			Amphipod Survival (%)	NH ₃ ^ / H ₂ S^	Sea Urchin Larvae % Normal SWI	NH ₃ ^ / H ₂ S^			
I. Stations with Elevated Chemistry, Recurrent Toxicity, and Degraded Benthos									
21401.0	1795	Stege Marsh #1 (10/97)	0*		0*	na	2.70	8	5 na
21401.0	1799	Stege Marsh #1 (12/97)	1*	S^	na	na	na	na	0.00
21402.0	1796	Stege Marsh #2 (10/97)	0*		0*	na	0.61	4	4 na
21402.0	1800	Stege Marsh #2 (12/97)	0*	S^	na	na	na	na	0.00
21403.0	1797	Stege Marsh #3 (10/97)	0*		19*	na	2.59	9	9 na
21030.0	1507	Mission Creek- Site 1 (5/95)	5*		na	0*	N^ S^	0.51	4 0 na
21030.0	1732	Mission Creek- Site 1 (4/97)	19*	S	11*	na	3.93	12	2 0.00
21301.0	1733	(Mission Creek- Mid Gradient) (4/97)	58*		98	na	1.00	3	0 0.34
21302.0	1734	(Mission Creek- End Gradient) (4/97)	80		94	na	0.28	C	0 0.65
21031.0	1508	(Mission Creek- Site 2) (5/95)	83		na	57*	N S	0.22	1 0 na
20011.0	1411	Islais Creek (9/94)	57*	S^	0*	N^ S^	na	na	na na
20011.0	1735	Islais Creek (4/97)	0*	S	8*	na	N^ S	1.18	4 1 0.22
21303.0	1736	(Islais Creek- Mid Gradient) (4/97)	81		45*	na	N	0.60	4 0 0.25
21304.0	1737	(Islais Creek- End Gradient) (4/97)	49*		76	na	N	0.62	2 0 0.43
II. Stations with Elevated Chemistry, Toxicity in One (of One) Sample and Degraded Benthics									
No stations matched this category.									
III. Stations with Highly Elevated Sediment Concentrations of Fish Advisory Chemicals (PCBs or Hg)									
21013.0	1490	Point Portero - Site 1 (5/95)	Total PCBs 19,901 ppb (110 x ERM); Hg 4.63 ppb (6.5 x ERM)						
21092.0	1577	South Basin - Yosemitie Creek (12/95)	Total PCBs 1804 ppb (10 x ERM)						
21014.0	1491	Point Portero - Site 2 (5/95)	Hg 9.14 ppb (12.9 x ERM)						

Table 28 (Continued). Categorization of Stations Based on Integrated Monitoring Data.

Station Number	Sample Number	Station (Sampling Date)	Toxicity Test Results						Mean ERM Quotient	Number of Chemicals with Concentrations Exceeding Either* ERMs or Top 10%	Relative Benthic Index	
			Amphipod Survival (%)	NH3^ H2S^	Sea Urchin Larvae % Normal SWI	NH3^ H2S^	100% PW	Degraded Benthos				
IV. Stations with Elevated Chemistry and Biological Impact Measured by Either Toxicity or Degraded Benthos												
21023.0	1753	Pacific Drydock - Yard 1 (4/97)	0*		72	na	NS	3.94	22	3	na	na
21023.0	1500	Pacific Drydock Yard 1 (4-95)	14*	S	na	97	S	1.27	9	1	na	na
21081.0	1563	(Pacific Drydock - PPD #3; 12-95)	79		na	89	na	na	na	na	na	na
21080.0	1562	(Pacific Drydock - I-T4; 12-95)	91		na	83	na	na	na	na	na	na
20010.0	1489	Castro Cove (5-95)	0*		0*	S	2.25	11	0	na	na	na
20010.0	1410	Castro Cove (9-94)	33*		97	96	na	na	na	na	na	na
21006.0	1483	Peyton Slough-Upper-Site 2 (5-95)	1*		na	0*	S	3.58	9	1	na	na
21006.0	1738	Peyton Slough-Upper-Site 2 (4-97)	69*		1*	na	Na	2.35	5	0	0.36	0.51
21305.0	1739	(Peyton Slough - Middle gradient) (4-97)	59*	N	0*	na	Na	0.40	2	0	0.34	0.34
21306.0	1740	(Peyton Slough - End gradient) (4-97)	14*	S	81	na	63*	0.30	1	0	na	na
21005.0	1482	(Peyton Slough-Mouth-Site 1) (5/95)	87	S	na	na	S	na	na	na	na	na
21027.0	1504	San Leandro Bay-Site 1 (4-95)	26*		na	93	1.52	10	2	na	na	na
21076.0	1558	Central Basin - Inner (12-95)	89		na	58*	N	0.50	8	0	na	na
21076.0	1745	Central Basin - Inner (4/97)	67*	S	63	na	na	na	na	na	na	na
21026.0	1503	Oakland-Fruitvale (4-95)	16*	N^ S	na	94	0.54	3	0	na	na	na
21026.0	1754	Oakland-Fruitvale (4/97)	55*	S	96	na	na	na	na	na	na	na
V. Stations with Elevated Chemistry and Mixed Results from Biological Indicators												
21028.0	1505	San Leandro Bay -Site 2 (4-95)	73		na	5*	N	0.77	4	1	na	na
21310.0	1755	San Leandro Bay-Site 3 (4/97)	40*		94	na	S	0.90	3	1	0.60	0.60
21311.0	1756	San Leandro Bay-Site 4 (4/97)	65*		19*	na	2.01	8	1	0.60	0.60	0.67
21312.0	1757	San Leandro Bay-Site 5 (4/97)	76		77	na	0.67	1	0	0.67	0.66	0.66
21314.0	1759	San Leandro Bay-Site 7 (4/97)	96		14*	na	1.33	5	0	0.66	0.66	0.66
21032.0	1509	Warm Water Cove -Potrero Pt (4-95)	95		na	70*	0.68	13	0	na	na	na

Table 28 (Continued). Categorization of Stations Based on Integrated Monitoring Data.

Station Number	Sample Number	Station (Sampling Date)	Toxicity Test Results						Mean ERM Quotient	Number of Chemicals with Concentrations Exceeding Either* ERMs or Top 10%	Relative Benthic Index
			Amphipod Survival (%)	NH3^ H2S^	Sea Urchin Larvac SWI	% Normal	NH3^ 100% PW	NH3^ 112S^			
VI. Stations with Measured Biological Impacts but Chemistry Values Below Thresholds or Not Measured											
21404.0	1798	Carlson Creek (10/97)	54*	24*	na	na	na	na	na	na	na
21404.0	1801	Carlson Creek (12/97)	85	na	na	na	na	na	na	na	0.51
21307.0	1746	Waldo Point (4/97)	59*	92	na	na	na	na	2	0	na
21022.0	1499	Oakland Inner Hbr.-Schnitzer (4-95)	60*	na	46*	0.36	3	0	na	na	na
21043.0	1520	Mayfield Slough-Near Sand Pt. (4-95)	60*	na	94	na	na	na	na	na	na
21041.0	1518	Guadalupe Slough (4-95)	85	na	0*	S^	0.32	2	0	na	na
21041.0	1751	Guadalupe Slough (4/97)	64*	95	na	na	na	na	na	na	na
21309.0	1752	San Bruno Channel #2 (4-97)	67*(Ita)	na	na	0*	N	na	na	na	na
21068.0	1548	Silva Island Marsh - MC61 (10/95)	92	44*	na	na	0.17	1	0	na	na
21068.0	1616	Silva Island Marsh - MC61 (6/96)	na	na	na	na	na	na	na	na	na
21054.0	1534	Chadborne Slough-MF13 (10/95)	91	na	0*	N S	na	na	na	na	na
21054.0	1615	Chadborne Slough-MF13 (6/96)	na	47*	na	0.14	1	0	na	na	na
21034.0	1511	South India Basin-Site 2 (4-95)	80	na	22*	0.45	3	0	na	na	na
21021.0	1498	Oakland In. Hbr.-Todd Shipyd (4-95)	72	na	48*	0.39	3	0	na	na	na
21090.0	1572	South Bay Basin - BA20 (12-95)	79	na	49*	na	na	na	na	na	na
21075.0	1557	Brannan Street CSO - Pier 32 (12/95)	80	na	59*	0.23	1	0	na	na	na
21017.0	1494	Richmond Inner Hbr.-Hoffman (5/95)	83	na	0*	S	0.25	0	0	na	na
21073.0	1555	Sansome Street CSO - Pier 31 (12/95)	80	na	8*	N	0.19	1	0	na	na
21077.0	1559	Central Basin - Outer (12/95)	87	na	10*	N	0.22	1	0	na	na
21079.0	1561	Gashouse Cove-Laguna CSO (12-95)	78	na	12*	N	0.23	1	0	na	na
21016.0	1493	Richmond Harbor (5/95)	88	na	22*	N	0.23	1	0	na	na
21071.0	1553	Treasure Island - Clipper Cove (12-95)	82	na	26*	N	na	na	ra	na	na
20012.0	1471	(Treasure Island-Clipper Cove, 3-95)	80	95	94	na	na	na	ra	na	na
21062.0	1542	Gallinas Creek - MD20 (10/95)	80	na	0*	na	na	na	na	na	na
21062.0	1613	Gallinas Creek - MD20 (6/96)	na	81	na	na	na	na	na	na	na
21063.0	1543	Novato Creek - MD21 (10/95)	92	na	1*	na	na	na	na	na	na
21063.0	1618	Novato Creek - MD21 (6/96)	na	98	na	na	na	na	na	na	na

Table 28 (Continued). Categorization of Stations Based on Integrated Monitoring Data.

Station Number	Sample Number	Station (Sampling Date)	Toxicity Test Results				Mean ERM Quotient	Number of Chemicals with Concentrations Exceeding Either* ERMs or Top 10%	Relative Benthic Index
			Amphipod Survival (%)	NH3^ (NH3^ / H2S^)	% Normal SWI	Sea Urchin Larvac PW (NH3^ / H2S^)			
VI. (Continued) Stations with Measured Biological Impacts but Chemistry Values Below Thresholds or Not Measured									
21056.0	1536	Selby - S2 (1/0/95)	89	na	2*	0.23	1	0	na
21056.0	1761	Selby - S2 (1/97)	100	96	na	na	na	na	na
21074.0	1556	Howard Street CSO (1/2/95)	82	na	33*	0.35	2	0	na
21074.0	1744	Howard Street CSO (4/97)	86	89	na	na	na	na	na
21065.0	1545	Sonoma Creek - MD33 (10/95)	88	na	0*	N	na	na	na
21065.0	1614	Sonoma Creek - MD33 (6/96)	na	98	na	na	na	na	na
21061.0	1541	Miller Creek- MD11 (10/95)	93	na	0*	N	na	na	na
21061.0	1617	Miller Creek-MD11 (6/96)	na	89	na	na	na	na	na
21085.0	1567	Redwood Creek - BA40 (12/95)	72	na	3*	N	na	na	na
21085.0	1621	Redwood Creek - BA40 (6/96)	na	98	na	na	na	na	na
21069.0	1549	Sausalito Harbr-Anderson B.Y. (10/95)	96	na	5*	N	na	na	na
21069.0	1619	Sausalito Harbr -Anderson B.Y. (6/96)	na	89	na	na	na	na	na
21029.0	1506	San Francisco- Pier 7 (5/95)	83	na	33*	NS^	0.21	2	0
21029.0	1742	San Francisco- Pier 7 (4-97)	79	87	na	na	na	na	na
21088.0	1570	Alviso Slough (12/95)	70	na	76*	N	na	na	na
21088.0	1620	Alviso Slough (6/96)	na	98	na	na	1	0	na
VII. Stations with Chemistry, Toxicity, and Benthic Degradation Below Thresholds or Not Measured									
21313.0	1758	San Leandro Bay-Site 6	70	96	na	S	0.44	2	1
21308.0	1747	Warm Water Cove #2	81	S	90	na	0	0	0.58
21315.0	1760	PCI&E/I evinson (Freshwater)	85 (Ia)	90 ((d))	na	na	1	0	na
21008.0	1485	Vallejo-Mare Is-Ship Anchorage	71	na	97	na	na	na	na
21015.0	1492	Santa Fe Channel- End	71	na	81	S^	na	na	na
21025.0	1502	North Government Island	71	na	97	na	na	na	na
21040.0	1517	Steinberger Slough-Nr Freeway	72	na	85	na	na	na	na
21067.0	1547	Richmond Rod And Gun	72	na	92	na	na	na	na

Table 28 (Continued). Categorization of Stations Based on Integrated Monitoring Data.

Station Number	Sample Number	Station (See Appendix B for Sampling Dates)	Toxicity Test Results						Mean ERM Quotient	Number of Chemicals with Concentrations Exceeding Either* ERMs or Top 10%	Relative Benthic Index
			Amphipod Survival (%)	NH ₃ ^{<} H ₂ S ^{<}	Sea Urchin Larvae % Normal SWI	NH ₃ ^{<} 100% PW	NH ₃ ^{<} 112S ^{<}	Sea Urchin Larvae % Normal SWI			
VII. (Continued) Stations with Chemistry, Toxicity, and Benthic Degradation Below Thresholds or Not Measured											
21001.0	1478	North Reserve Fleet-Suisun	73		na	89	S	na	na	na	na
20008.0	1576	Bolinas Lagoon	74		na	88		na	na	na	na
21007.0	1484	Vallejo-Mare Island-North Side	74		na	98		na	na	na	na
21039.0	1516	Steinberger Slough- Nr Mouth	74		na	91		na	na	na	na
21035.0	1512	Sierra Point	77		na	89		na	na	na	na
21057.0	1537	Lake Merritt - MW #307.5	77		na	93		na	na	na	na
21042.0	1519	Mayfield Slough-Nr Cooley Ldng	78		na	97		na	na	na	na
21072.0	1554	Corte Madera Marsh - MC51	79		na	89		na	na	na	na
21087.0	1569	Coyote Creek - CX	79		na	87	S	na	na	na	na
21018.0	1495	Cerrito Creek Mouth	81		na	97		na	na	na	na
21084.0	1566	S.F. Airport - South	82		na	80		na	na	na	na
21046.0	1523	Mowry Slough	83		na	97		na	na	na	na
21064.0	1544	Tolay Creek Mouth- MD31	83		na	94		na	na	na	na
21037.0	1514	Oyster Point (East)-Site 2	84		na	91		na	na	na	na
21038.0	1515	San Bruno Channel	84		na	93		na	na	na	na
21091.0	1573	Dumbarton Bridge - BA30	84		na	86		na	na	na	na
21036.0	1513	Oyster Point (West)-Site 1	85		na	67		na	na	na	na
21050.0	1530	Grizzly Bay- Rmp BF20	85		na	95		na	na	na	na
21024.0	1501	Pacific Drydock Yard 2	86		na	94		na	na	na	na
21033.0	1510	North India Basin-Site 1	86		na	95		na	na	na	na
21049.0	1529	Dow Chemical- Kirker Creek	86		na	83		na	na	na	na
21052.0	1532	Hill Slough- MI:21	86		na	96		na	na	na	na
21070.0	1550	Yerba Buena Island - Naval Stn	86		na	92		na	na	na	na
21086.0	1568	Redwood Creek - West	86		na	87		na	na	na	na

Table 28 (Continued). Categorization of Stations Based on Integrated Monitoring Data.

Station Number	Sample Number	Station (See Appendix B for Sampling Dates)	Toxicity Test Results						Mean ERM Quotient	Number of Chemicals with Concentrations Exceeding Either* ERMs or Top 10%	Relative Benthic Index
			Amphipod Survival (%)	NH3^ SWI	% Normal SWI	Sea Urchin Larvae NH3^ PW	H2S^	NH3^ H2S^			
VII. (Continued) Stations with Chemistry, Toxicity, and Benthic Degradation Below Thresholds or Not Measured											
21019.0	1496	Cordornices Creek Mouth	87	na	97	S	na	na	na	na	na
21047.0	1524	Coyote Slough-@Fixed R/R Bridge	87	na	96		na	na	na	na	na
21055.0	1535	Semple Point-M.W. VA-7	87	na	93		na	na	na	na	na
21082.0	1564	S.F. Airport - Seaplane Harbor	87	na	87		na	na	na	na	na
211004.0	1481	Pacheco Cr-Above Bridge-Site 2	88	na	97	S	na	na	na	na	na
21010.0	1487	San Pablo Bay- Hamilton	88	na	98	S	na	na	na	na	na
21020.0	1497	Emeryville Marsh	89	na	97		na	na	na	na	na
21051.0	1531	Boynton Slough- MI-10	89	na	92		na	na	na	na	na
21053.0	1533	Suisun Slough	89	na	82		na	na	na	na	na
21066.0	1546	Napa Slough- MD32	89	na	90		na	na	na	na	na
21002.0	1479	South Reserve Fleet-Suisun	90	na	91	S	na	na	na	na	na
21058.0	1538	Pg&E-Vallejo-Coal Gas Plant	91	na	85		na	na	na	na	na
21083.0	1565	S.F. Airport - Central	91	na	80		na	na	na	na	na
21003.0	1480	Pacheco Cr-Near Mouth-Site 1	93	na	91		na	na	na	na	na
21059.0	1539	Petaluma River Mouth- BD20	93	na	93		na	na	na	na	na
21060.0	1540	Miller Creek- MD10	93	na	79		na	na	na	na	na
21089.0	1571	Ravenswood Slough - West	96	na	86		na	na	na	na	na

Table 28 (Continued). Categorization of Stations Based on Integrated Monitoring Data.

Station Number	Sample Number	Station (Sampling Date)	Toxicity Test Results						Mean ERM Quotient	Number of Chemicals with Concentrations Exceeding Either* ERM's or Top 10%	Relative Benthic Index			
			Amphipod Survival		Sea Urchin Larvae		% Normal NH ₃ [^]	NH ₃ [^] / H ₂ S [^]						
			NH ₃ [^]	H ₂ S [^]	% Normal SWI	100% PW								
VIII. Reference Stations														
20005.0	1488	Paradise Cove - Reference (5/95)	84		na	96			na	na	na			
20005.0	1552	Paradise Cove - Reference (10/95)	85		na	3*			0.17	1	na			
20005.0	1741	Paradise Cove - Reference (4/97)	79		96	na			0.16	0	0			
20006.0	1551	Sp Bay-Tubbs Is.-Reference (10/95)	87		na	96			na	na	0.50			
20006.0	1622	Sp Bay-Tubbs Is.-Reference (6/96)	na		98	na			na	na	na			
20007.0	1486	Sp Bay-Is. #1 Reference (5/95)	84		na	97			na	na	na			
20007.0	1750	Sp Bay-Is. #1 Reference (4/97)	51*		88	na			na	na	na			
20013.0	1521	North-South Bay-Reference (4-95)	89		na	87			na	na	0.39			
20013.0	1574	North-South Bay-Reference (12/95)	86		na	0*			0.11	1	na			
20013.0	1749	North-South Bay-Reference (4/97)	98		98	na			na	na	0.58			
20014.0	1522	South-South Bay-Reference (4-95)	86		na	98			na	na	na			
20014.0	1575	South-South Bay-Reference (12/95)	88		na	89			na	na	na			

**Lists of chemicals with concentrations above ERMs and in the highest 10% of BPTCP measurements statewide are mutually exclusive. That is, only non-ERM chemicals were evaluated for distribution in the statewide data set. The two columns should be summed to give an estimate of the number of chemicals of possible concern.

* In amphipod tests, N indicates overlying water un-ionized ammonia concentrations above 0.8 mg/L (EPA, 1995), and S indicates hydrogen sulfide concentrations above 0.114 mg/L (Knezovich et al., 1995). N[^] and S[^] indicate concentrations more than 5 times these threshold values.

[^] In sea urchin larval development tests, N indicates overlying water un-ionized ammonia concentrations above 0.07 mg/L (Bay et al., 1993), and S indicates hydrogen sulfide concentrations above 0.0076 mg/L (Knezovich et al., 1995). N[^] and S[^] indicate concentrations more than 5 times these threshold values.

"Ha" indicates *Hyalella azteca*, the freshwater amphipod, and "Cd" indicates *Ceriodaphnia dubia*, the water flea.

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